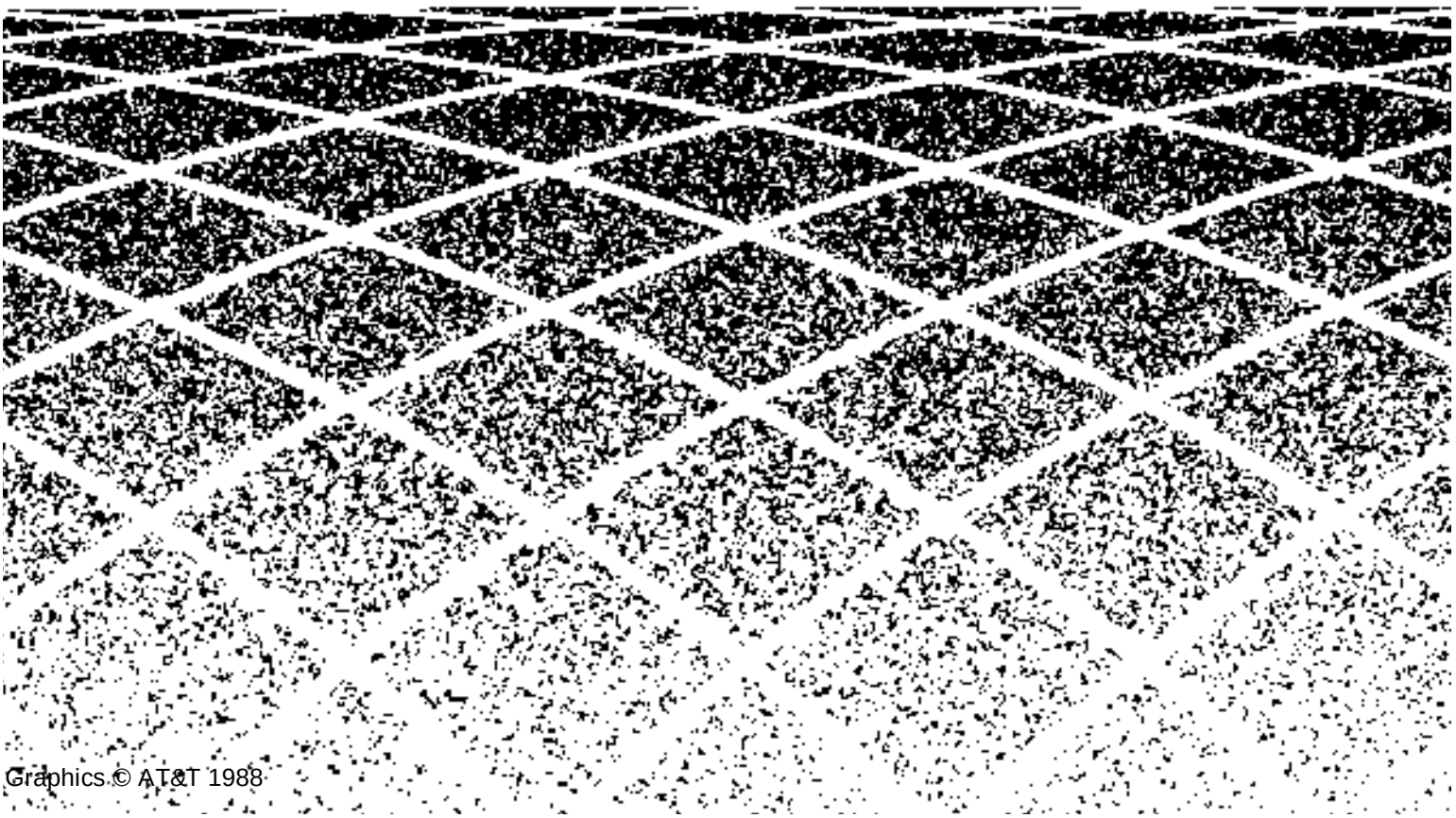
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DEFINITY® Communications System Generic 3 Installation (For Single-Carrier Cabinets)



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About This Book

This book supports DEFINITY® Communications Systems Generic 3 Version 3 and later. This book provides procedures and information for installing the hardware and initially testing the DEFINITY Communications System Generic 3, Models G3i and G3s. The information in this book applies to single-carrier cabinet switches only.

DEFINITY is a registered trademark of AT&T. DEFINITY Communications System Generic 3 is abbreviated as G3.

This Book's Organization

This book is organized into 10 chapters and 10 appendices. The procedures in this book should be read and followed sequentially.

- *Chapter 1, "Overview and Roadmap"*

  Provides an overview of system reliability options and a step-by-step roadmap for installing and testing the system.

- *Chapter 2, "Plan and Prepare the Site"*

  Explains how to plan and prepare the site and includes typical floor plans.

- *Chapter 3, "Unpack the Cabinet"*

  Explains how to safely unpack the cabinets.

- *Chapter 4, "Install and Connect the Cabinets"*

  Explains how to install the cabinets, install the power, and connect the cabinets together.

- *Chapter 5, "Install Telecommunications Cabling"*

  Explains how to install cabling between the switch and the cross-connect field.

- *Chapter 6, "Install Generic 3 Management Terminal"*

  Explains how to install and bring up the Generic 3 Management Terminal.

- *Chapter 7, "Activate the System"*

  Explains how to activate and initialize the system.

- *Chapter 8, "Test the System"*

  Explains how to test the system.

- *Chapter 9, "Install and Wire Telephones and Other Equipment"*

  Explains how to install and wire telephones and other equipment to the switch.

- *Chapter 10, "Test Telephones and Other Equipment"*

  Explains how to test the equipment installed in Chapter 9.

- *Appendix A, "Approved Grounds"*
- *Appendix B, "Earthquake Protection Procedures"*
- *Appendix C, "DEFINITY AUDIX System Power Procedures"*
- *Appendix D, "Country Differences"*
- Appendix E, "Installing the 9400-Series Telephones"
- Appendix F, "Wire Conversion Information"
- Appendix G, "Electrical Code Equivalencies"
- Appendix H, "Option Switch Settings"
- Appendix I, "References"
- Abbreviations
- Index

Other Books

In addition to this book, other system description, installation and test, maintenance, and administration books are available. A complete list of DEFINITY Generic 3 books available in United States English can be found in the *Global Business Communications Systems Publications Catalog,* 555-000-010. A list of books relevant to this product can be found in Appendix I.

This catalog and all DEFINITY Communications System Generic 3 documentation in United States English can be ordered directly from:

General Business Communications System Publications Fulfillment Centre at 1-317-361-5353.

Trademarks

This book contains references to the following trademarked products:

- AUDIX® is a registered trademark of AT&T
- DEFINITY® is a registered trademark of AT&T
- LINX™ is a trademark of Illinois Tool Works, Inc.
- Shockwatch™ is a trademark of Media Recovery, Inc.
- Styrofoam™ is a trademark of Styrofoam Corporation
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Overview and Roadmap

1

This chapter presents general information about the methods to configure your DEFINITY System Generic 3 for system availability.

It also provides a roadmap (a high-level overview of the sequence of steps) for the installation of the system. The roadmap provides references to the appropriate chapter in this book or other books for detailed instructions.

System Reliability

The DEFINITY System G3 provides various system reliability configurations or duplication options. These reliability configurations provide for duplication of G3 system components for higher system availability. The following three types of reliability supply your system's needs:

- Standard Reliability
- High Reliability
- Critical Reliability

Within these configuration options, you can duplicate the following components:

- Processor Port Network (PPN) Control Carrier
- Expansion Port Network (EPN) Control Carrier
- Inter-Port Network (PN) Connectivity (fibre-optic cabling)
- Tone-Clock

Chapter 4, "Install and Connect the Cabinets" provides more detail on system reliability configurations.

Standard Reliability

DEFINITY System G3 standard reliability systems provide the most cost-effective product. This is the only reliability offering for a G3s system. Standard reliability systems do not duplicate Tone-Clock(s), the Control Carriers, or any inter-Port Network (PN) connectivity.

Standard reliability systems use the following components:

- One control carrier per port network (Expansion Port Network (EPN) or Processor Port Network (PPN))
- One Tone-Clock per port network
- Simplex inter-Port Network (PN) connectivity (via fibre-optic cables)

High Reliability

The G3i high reliability option provides duplication of hardware associated with the Processor Port Network (PPN) Control Carrier.

High Reliability systems use the following components:

- Duplicate Control Carriers in the Processor Port Network (PPN)
- Duplicate Processor Port Network (PPN) Tone-Clocks, one in each Control Carrier
- One Tone-Clock per Expansion Port Network (EPN)
- Simplex inter-Port Network (PN) connectivity

Critical Reliability

G3i critical reliability option provides the highest reliability through duplication of the control carrier(s), inter-Port Network (PN) connectivity, and Tone-Clocks.

Critical Reliability systems use the following components:

- Duplicate control carriers in the Processor Port Network (PPN) and Expansion Port Network (EPN)
- Duplicate Tone-Clocks in each port network (Processor Port Network (PPN) and Expansion Port Network (EPN))
- Duplicate inter-Port Network (PN) connectivity, using duplicated Expansion Interface circuit packs and fibre optic cables.

DEFINITY System Installation Roadmap

This section is intended to provide a high-level sequence for the installation process and also a roadmap to the information in this book. It is also noted where specific steps are covered in other books.

Plan and Prepare the Site

Complete this task by following the instructions provided in Chapter 2.

1. Determine what was ordered for the customer: DEFINITY System Generic 3, number of cabinets and port networks, management terminals, adjuncts, consoles, telephones, modems, external trunks, etc.
2. Locate DEFINITY System equipment room and lay out equipment room floorplan for system cabinets, management terminal and desk, cross-connect hardware and adjuncts, etc.
3. Lay out and ensure appropriate power for switch and management terminal in equipment room and arrange for an electrician to install.
4. Lay out and ensure appropriate grounding in equipment room (refer to Appendix A, "Approved Grounds").
5. Determine location of equipment closets where large cables can be connected out into smaller ones.
6. Determine where external trunk lines come into the building and where external trunk converters and adapters will be installed.
7. Determine an appropriate available port circuit on DEFINITY System for each telephone, trunk, and peripheral connection needed and create a provisioning plan.

Unpack the Cabinets

Complete this task by following the instructions provided in Chapter 3.

1. Unpack and inspect the cabinets.
2. Check circuit packs.

Install and Connect the Cabinets

Complete this task by following the instructions provided in Chapter 4.

1. Install earthquake floor mounting if needed (refer to Appendix A, "Approved Grounds").
2. Position and stack cabinets.
3. Connect system cabinet grounds.

4. Connect battery leads.
5. Connect AC power *or* DC power.
6. Locate and connect Time Division Multiplexer (TDM) Bus.
7. Locate and connect inter-cabinet cables, if system has duplicated Switch Processor Elements (SPEs) in Processor Port Network (PPN) control cabinets (high or critical reliability configurations).
8. Install fibre optic cables between port networks (if the system has more than one cabinet stack).
9. Verify port cabinet address plugs.
10. Replace cabinet back panels.
11. Install ground plates.
12. Install cable clamps.
13. Install front plates (if needed for electromagnetic shielding and/or earthquake protection — see Appendix B, "Earthquake Protection Procedures").
14. Install cabinet clip (if you do not have earthquake protection or electromagnetic shielding).

Install Telecommunications Cabling

Complete this task by following the instructions provided in Chapter 5.

1. Install cross connect equipment.
2. Install cable slack manager.
3. Route cables from cabinet to cross-connect field.
4. Connect control carrier outputs cable.
5. Label cables.
6. Install trunk cables among network interface, sneak fuse or circuit breaker panel, and switch cabinet.
7. Install coupled bonding conductor grounding.

Install Generic 3 Management Terminal (G3-MT)

Complete this task by following the instructions provided in Chapter 6.

1. Connect Management Terminal.
2. Set up Management Terminal.
3. Connect remote Management Terminal (if included).

Activate the System

Complete this task by following the instructions provided in Chapter 7.

1. Power up switch.
2. Log in to the system.
3. Set required country options.
4. Change craft password.
5. Set date and time.
6. Set system maintenance parameters, if Packet Controller (TN778 Circuit Pack) is included.
7. Save and back up translations.

Test the System

Complete this task by following the instructions provided in Chapter 8.

1. Check the system status for each cabinet.
2. Check circuit pack configuration.
3. Test Time Division Multiplexer (TDM) bus in Processor Port Network (PPN).
4. Test Tone-Clock boards.
5. Test Switch Processor Element (SPE) duplication memory shadowing link, only for high and critical reliability systems.
6. Test duplicated Switch Processor Element (SPE) interchange, only for high and critical reliability systems.
7. Test expansion interface boards, if present.
8. Test Time Division Multiplexer (TDM) for each Expansion Port Network (EPN), if Expansion Port Networks (EPN) are present.
9. Test Tone-Clock for each Expansion Port Network (EPN), if Expansion Port Networks (EPN) are present.
10. Test Tone-Clock interchange for each Expansion Port Network (EPN), only for critical reliability systems with Expansion Port Networks (EPN) present.
11. Test expansion interface exchange for each Expansion Port Network (EPN), if Expansion Port Networks (EPNs) are present.
12. Check circuit pack configuration, again.
13. Save and back up translations again, if required.
14. Re-install front doors on switch cabinets.

Install and Wire Telephones and Other Equipment

Complete this task by following the instructions provided in Chapter 9.

NOTE:
For easier reference, installation steps and test steps are grouped in separate chapters. It may be better to install each hardware component, administer it, and then test it before going on to install another component. As an example, install the Attendant Console using the procedures in Chapter 9, "Install and Wire Telephones and Other Equipment", administer it using the procedures in "Administer the DEFINITY System According to Customer Requirements" on page 1-7, and test it using the procedures in Chapter 10, "Test Telephones and Other Equipment".

1. Make and label wiring cross connections for this customer, using provisioning plan as directed in Step 7 of Chapter 2, "Plan and Prepare the Site".
2. Install and label equipment.
3. Install the attendant consoles.
4. Install the telephones.
5. Install the trunks.
6. Install the interface for the remote management terminal (known as INADS).
7. Install the emergency transfer units and associated telephones.
8. Install external ringing.
9. Install queue warning indicator.
10. Install auxiliary power.
11. Install Basic Rate Interface (BRI) telephone, Basic Rate Interface (BRI) terminating resistor, multipoint adapter, and power adapter.
12. Install auxilliary equipment
13. Install the Processor Data Module (PDM).
14. Install the Call Management System (CMS) interface.
15. Install Property Management System (PMS).
16. Install any customer-provided terminals using Asynchronous Data Units (ADUs).
17. Install Station Message Detail Recording (SMDR)/Call Detail Recording Unit (CDRU) interface.

Administer the DEFINITY System According to Customer Requirements

After the hardware is installed and the system is activated, the data for system and telephone features must be administered, using the provisioning plan created for this customer in Step 7 in Chapter 2, "Plan and Prepare the Site". All steps for the administration of the system are provided in the United Kingdom English book, *DEFINITY Communications System Generic 3 Implementation*, 555-230-655.

Test Telephones and Other Equipment

Complete this task by following the instructions provided in Chapter 10.

1. Make test calls (single-port-network switch).
2. Make test calls (two-port-network switch).
3. Make test calls (three-port-network switch).
4. Test the attendant console and selector console.
5. Test external ringing.
6. Test queue warning indicator.
7. Test integrated announcement.
8. Test music-on-hold.
9. Test emergency transfer.
10. Test remote access interface (known as INADS).
11. Test Basic Rate Interface (BRI).

Plan and Prepare the Site

2

This chapter describes tasks required to plan, prepare, and provision the site depending upon which DEFINITY System Generic 3 was ordered. Perform the following:

- Check the customer's order.
- Locate and lay out the equipment room.
- Lay out and ensure appropriate power.
- Lay out and ensure appropriate grounding.
- Determine location of equipment closets.
- Determine location of external trunk lines.
- Create a provisioning plan.

Check the Customer's Order

Determine what was ordered for the customer: DEFINITY System Generic 3, the number of cabinets, port networks, management terminals, adjuncts, consoles, telephones, modems, external trunks, etc.

NOTE:
One port network is equivalent to one single-carrier-cabinet stack. Throughout this document, "cabinet" sometimes refers to one single-carrier cabinet and sometimes refers to one *stack* of single-carrier cabinets, according to the context. An attempt has been made to use "single-carrier cabinet (SCC)" to mean exactly that and to use the more general term, "cabinet," to mean a stack of one or more single-carrier cabinets or a port network. A "system" is one or more single carrier cabinet stacks.

Locate and Lay Out the Equipment Room

Determine where the DEFINITY System Generic 3 equipment room is located, and then lay out the equipment room floor plan for DEFINITY System cabinets, management terminal and desk, cross-connect hardware and adjuncts, etc.

Generic 3 Management Terminal (G3-MT) Requirements

In general, the Management Terminal must be directly connected to the cabinet with the shortest possible cable. For maintenance purposes, the terminal must be located in the same equipment room as the cabinet, or in sight of the cabinet.

Power for the terminal must be obtained from a single-phase standard 120 Volt 60 Hz or 230 Volt 50 Hz AC receptacle in the equipment room.

Cross-Connect Fields

Recommended hardware is the wall-mounted 110 SYSTIMAX premises distribution equipment for structured cabling systems.

Space Requirements

The floor plan shown in Figure 2-1 provides dimensions for the Processor Port Network (PPN) cabinets and Cable Slack Managers.

Room Layout

Typical floor plans for a single-carrier cabinet are shown below:

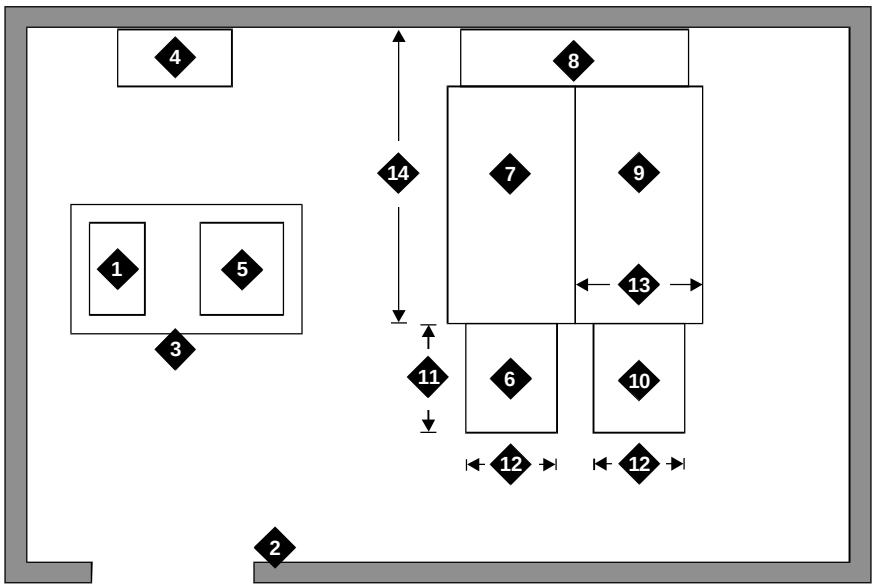


Figure Notes:

1. Printer (Optional)
2. Wall
3. Table
4. Trunk/Auxiliary Field. May be Located within Cross-Connect Field.
5. G3 Management Terminal (G3-MT)
6. Processor Port Network (PPN) Cabinets
7. Cable Slack Manager
8. Cross-Connect Field
9. Cable Slack Manager (Optional)
10. Expansion Port Network (EPN) Cabinets (optional). Space indicated by callouts 9 and 10 needed for each Expansion Port Network (EPN) in system.
11. 22 Inches (55 cm)
12. 27 Inches (68 cm)
13. 32 Inches (81 cm)
14. 40 Inches (101 cm)

Additional Notes:

AC receptacles must be separately current protected (fuse or circuit breaker) and not under the control of a wall switch. Receptacles must not be shared with other equipment and should be located away from the cross-connect field.

System must be grounded by one of the approved methods. See Appendix A.

Earthquake protection and/or electromagnetic shielding may be required. See Appendix B.

Figure 2-1. Typical Floor Plan for G3i Single-Carrier Processor Port Network (PPN) with Expansion Port Network (EPN) Cabinets

Cable Slack Manager (Optional) Requirements

A cable slack manager (optional) is 32 inches (81 cm) wide and 40 inches (102 cm) deep. Normally, one slack manager is needed for each cabinet stack. Extra slack managers may be ordered, if necessary.

Tools Needed

Table 2-1 lists the tools and test equipment required to install the switch. Make sure all tools are available before installing the DEFINITY System Generic 3.

Table 2-1. Tools and Test Equipment Inventory

Tasks	Equipment Required	Recommended Type	Recommended Types for Europe
Unpacking Cabinet	Tin Snips		
	Utility Knife		
	Adjustable Wrench	6- or 8-inch	
Installing Cabinet*	Electric Drill	Impact type	
	Masonry Bit	1/2-inch	
	Drill Bit (for Computer Floors only)	5/8-inch	
	Drift Punch	Length as required to reach from computer floor to concrete floor	
	Chalk Line		
	Rule	30-inch	
	Adjustable Wrench	6- or 8-inch	
	Ratchet	1/2-inch	1/2-inch †
	Sockets	5/16-, 1/2-, and 3/4-inch	5/16-, 1/2-, and 3/4-inch †
	Nut driver	1/4-inch	1/4-inch †
	Screwdriver	8-inch flat blade	
	Allen Wrench ‡	1/8-inch	
Checking Commercial Power	Digital Multimeter	KS-20599	
Circuit Pack Voltage Check	Voltage Tester	TN2036 (optional)	
Initializing Switch	Generic 3 Management Terminal	715 Management Terminal	
Installing cables and telephones	Diagonal cutters		
	Phillips screwdriver		
	Electric drill for installing information outlets		
	Impact tool for cross-connect hardware		
	Test (telephone) set		

* Electric drill and drill bits are required for earthquake mounting.

† Since U.S./English fasteners are used, U.S./English tools are required unless an exact match can be found among metric tools.

‡ Required when installing an AC powered switch.

Lay Out and Ensure Appropriate Power

1. Lay out and ensure appropriate power for switch cabinets and management terminal in equipment room.
2. Provide one power outlet per single-carrier cabinet.
3. Have an electrician check the commercial power and verify power is available and present.

Power Arrangements for AC Power

The following procedures apply to both the Processor Port Network (PPN) cabinet(s) and Expansion Port Networks (EPN) cabinet(s) (as provided), except where noted.

The following illustration shows a typical power and grounding layout, and the illustration after that shows the AC power receptacle requirements. The power circuit must be dedicated to the DEFINITY System Generic 3 only and must be on a separately current limited (fuse or circuit breaker) circuit. It must not be shared with other equipment and **must not be** under the control of a wall switch. The power supply for the Generic 3 Management Terminal (G3-MT), however, does not have to be dedicated

Locate and/or arrange the cross-connect field so all power receptacles are accessible.

Power Arrangements for DC Power

The following table shows the input DC requirements for the system -48 VDC Input Power Requirements

Parameter	Requirements
Static Voltage	-48 VDC nominal, -42.5 VDC minimum, -52.5 VDC maximum (measured at input to System cabinet) under normal operating conditions.
Dynamic Voltage	Transient change in voltage— +/- 5% of steady state voltage. Allowed transient duration—Up to 200 milliseconds.
AC Ripple Voltage	Maximum wideband AC ripple— 450 mvpp (millivolts peak-to-peak) in the 3 kHZ to 20 MHZ band.
Low Voltage Disconnect	Automatic disconnect—Occurs when input voltage is less than -42.5 VDC (control provided with battery plant).
Overvoltage Protection	Input voltage at switching cabinets shall not exceed -52.5 VDC.
Voltage Drop	Maximum drop—Must not exceed 0.5 VDC one way on feeder cables between the power board and the System cabinet. Feeders must be Underwriter Laboratories (UL) approved (or equivalent) and Canadian Safety Association (CSA) certified. Recommended -48 VDC feeder cable—Royal Electric #X4905 or equivalent No. 1 AWG is required for distances up to 50 feet (15 meters). Cable resistance must be equal to or less than 0.1290 ohms per 1000 feet 304 meters).
Current Draw	The battery plant rectifiers must be capable of providing current for the System including that required for System holdover and for charging the batteries. In addition, this may include DC current required for an inverter that provides Occupier to peripheral equipment if it is installed and for future growth.
Circuit Breaker	An Underwriter Laboratories (UL) listed and Canadian Safety Association (CSA) certified circuit breaker must be provided at the battery plant power board for each System cabinet feeder. The recommended circuit breakers are 75 ampere Airpax UPL-1-1REC2-52-753 or Heinemann AM1-B2-A-75-2.
Redundancy	Redundancy of the battery chargers/rectifiers should be considered. This would also provide the additional current necessary to recharge the batteries after being fully discharged.

Parameter	Requirements
Electrical Noise	Voice band noise from the battery plant to the system must be less than 32 dBrnC (decibels above reference noise with C-filter or -58 dBmp (decibels below 1 milliwatt psophometric).
Grounding	A single point ground must be maintained. A ground conductor must be installed from the battery plant GROUND DISCHARGE BAR to the closest "Approved Ground" via the shortest and most direct route as required by the National Electrical Code or applicable electrical code in your area. The gauge must be no smaller than the largest conductor in the System and larger than 6 AWG. Grounding between the system cabinet and the battery plant should be connected using the procedures given later in this chapter.
Lightning Protection	There must be adequate lightning protection in the battery plant to insure that the system will not be damaged.

Lay Out and Ensure Appropriate Grounding

Grounding is relatively simple for an AC-powered switch. First, connect the cabinets to each other. Then, connect a single ground wire from the Processor Port Network (PPN) to the approved protective ground.

Grounding of the system must comply with the general rules for grounding contained in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable electric code in your country. See Appendix A for a description of "approved ground."

Connect Coupled Bonding Conductor

The Coupled Bonding Conductor connects to the single-point-ground-block and runs adjacent to pairs in an associated telecommunications cable. The mutual coupling between the bonding conductor and the pairs reduces potential differences in terminating equipment. The conductor consists of a 10 AWG wire that must be tie-wrapped to the inside wiring cable and terminated at the coupled bonding conductor terminal bar at the switch cross-connect field.

Refer to Appendix F for wire conversion information.

Refer to Figure 4-9 on page 4-13 for an illustration of a Coupled Bonding Conductor.

If the approved protective ground or approved floor ground can only be accessed inside a dedicated power equipment room, you should have an electrician make the connections to this ground.

NOTE:
Check location of the AC power receptacle. The receptacle must be on a separately current limited (fuse or circuit breaker) circuit not controlled by a wall switch.

Determine the Location of the Equipment Closets

Determine the location of the equipment closets where large cables can be connected out into smaller ones. Determine locations of terminating resisters for Basic Rate Interface (BRI) station circuits to be installed in equipment closets.

Determine External Trunk Locations

Determine where external trunk lines come into the building and be routed to the equipment room. Determine where external trunk converters and adapters as well as sneak-current fuse panels will be installed in the switch room (preferably close or next to the cross connect fields).

Create a Provisioning Plan

Determine an appropriate available port circuit on the DEFINITY System for each telephone, trunk, and peripheral connection needed, and, in addition, plan for auxiliary power for Basic Rate Interface (BRI) and certain display sets.

Create a provisioning plan to include the following (see the example on the following page):

- Station or trunk type or feature/service.
- Building location (floor/room/desk/information outlet).
- Extension number or trunk group and member number.
- Port circuit location on the switch for each endpoint (DEFINITY System Generic 3 cabinet/carrier/slot/circuit.
- Route from switch room through equipment closets to each endpoint.
- Auxiliary power supply, if required.

Table 2-2. Example of a Provisioning Plan

Station or Trunk Type or Feature/Service	Building Location (floor/room/ desk/ information outlet	Extension Number or Trunk Group and Member	DEFINITY G3 cabinet/ carrier/slot/ circuit	Route from equipment closets	Auxiliary Power Required?
8410					
8403					
Attendant Console					
Analog CO					
Digital Tie					
.....					
Music on Hold					

Unpack the Cabinet

3

This chapter describes the system unpacking procedures.

The DEFINITY System Generic 3 (G3) single-carrier cabinets are shipped in a polyethylene bag, packed in a cardboard container. The cabinet is fastened to a wood/Styrofoam pallet with two metal bands. The cardboard container is strapped to the pallet with another metal band.

⚠ DANGER:
Lifting the cabinet requires two people, as it may weigh as much as 130 pounds/60 kilograms. Use caution to avoid injury.

Unpack and Inspect for Damage

Unpacking the Cabinets

To unpack the cabinets, complete the following steps:

1. Check the status of the SHOCKWATCH and/or TILTWATCH indicators on the cardboard container. These indicators are white under normal conditions. If the container has been shaken or tilted beyond specifications, the indicators will be red, indicating potential damage. Report any damage according to local shipping instructions.
2. Remove the cabinet from the cardboard container.

   ⚠ DANGER:
   Take care to avoid injury while cutting and removing bands.

3. Remove all cardboard, tape, and plastic.

CAUTION:
Deep knife penetration may damage the cabinet.

4. Open and remove the front door and back panels from cabinet. The screw location is shown in the following figures.

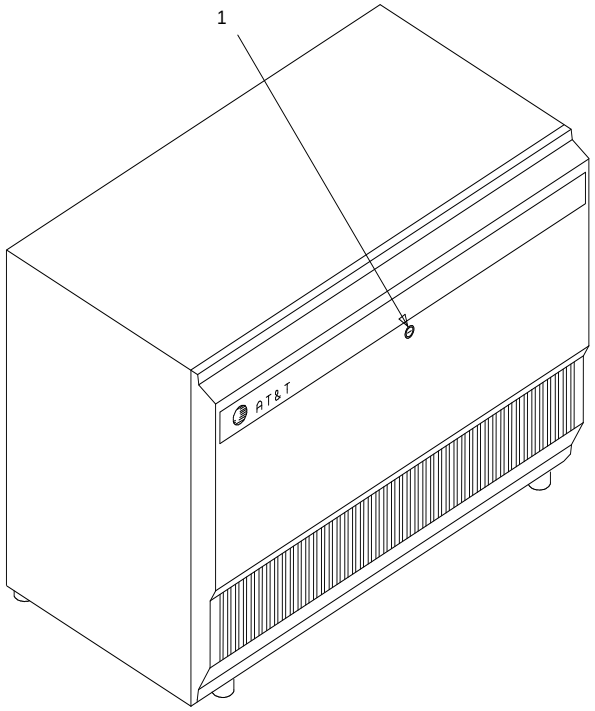


Figure Notes:

1. Screw that opens front cabinet door

Figure 3-1. Front Cabinet Door Latch Screw Location

Figure 3-2 shows the back panel screw locations.

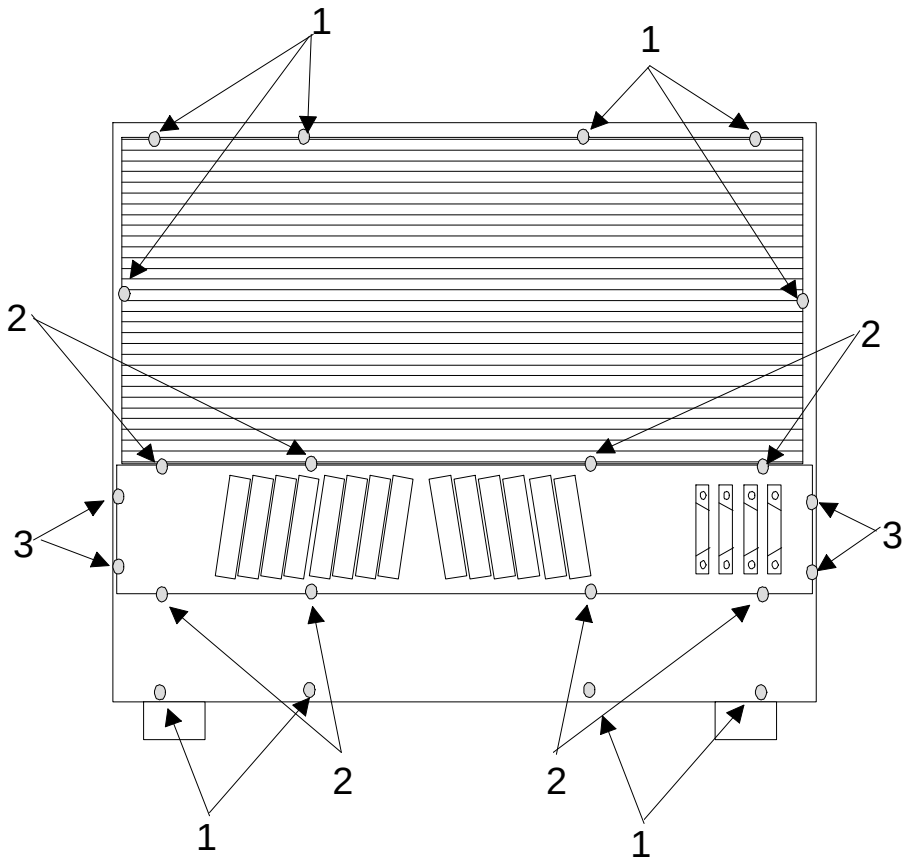


Figure Notes:

1. Screws to remove
2. Screws to loosen
3. Screws to remain

Figure 3-2. Back Cabinet Panel Screw Locations

1. Remove all packing material from inside the cabinet.

Inspect Cabinet

2. Inspect cabinet for any damage that may have occurred during shipping. Report any damages according to local shipping instructions.

3. Verify the label near the circuit breaker on the power supply toward the rear of each cabinet corresponds to your local voltage type.

DANGER:
*If the label is different than the voltage type at your site, notify your A T & T representative immediately for a replacement power supply. Do **not**, under any circumstances, connect the system to power!*

Check Circuit Packs

4. Ensure all circuit packs are fully inserted into the proper slots according to the Customer Service Document (CSD). Report any discrepancies in circuit pack type or quantity to your AT&T representative.

Install and Connect the Cabinets

4

This chapter describes how to install the Processor Port Network (PPN) and Expansion Port Network (EPN) single-carrier cabinets for DEFINITY System Generic 3. Directions are provided for the following configurations:

- Standard reliability
- High reliability
- Critical reliability

Refer to About This Book for a description of each configuration.

This chapter discusses single-carrier cabinets only. For information on multiple-carrier cabinets, refer to the *DEFINITY Communications System Generic 1 and Generic 3 Installation and Test* document.

To install the cabinets, complete the following steps as detailed in this chapter:

1. Install earthquake floor mounting (if earthquake protection is required)
2. Position and stack cabinets
3. Connect grounds and Connect AC power or DC power
4. Connect Time Division Multiplexing (TDM) cables
5. Connect inter-cabinet cables (ICC)
6. Verify address plug settings
7. Install back plates
8. Install ground plates
9. Install front cabinet clips or ground plates
10. Connect fibre-optic cables
11. Install doors

Install Earthquake Mounting

If earthquake protection is required for your area, install earthquake floor mounting as directed in Appendix B.

Position and Stack the Cabinets

Follow the diagram in the Customer Service Document (CSD) shipped with each cabinet, and stack the DEFINITY System Generic 3 cabinets using these steps:

1. Place the control cabinet in position at the location determined when room layout was planned.

   NOTE:
   Check location of the AC/DC power receptacle. The receptacle must be on a separately fused circuit *not* controlled by a wall switch. It must be located within 10 feet (3 meters) of the cabinet, and should be located outside the cross-connect field area.

2. Stack the single-carrier cabinets by letter, according to the serial numbers and lettered designation strips in the Customer Service Document (CSD), and as shown in Figure 4-1.

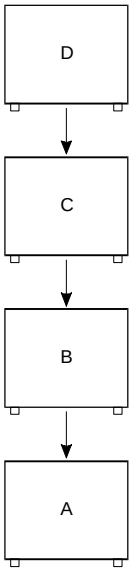


Figure 4-1. Cabinets Stacked by Letter

3. Remove the front cabinet door and back cabinet panel. See "Unpack and Inspect for Damage" on page 3-1 for more information.

Connect System Cabinet Grounds

To connect ground, refer to Figure 4-2 on page 4-4 and perform the following:

1. At lower left rear of the Processor Port Network (PPN) cabinet (Control Cabinet A), connect a 6 AWG ground wire to the cabinet ground block. See Appendix F for international wire conversions for outside North America.

   NOTE:
   A screwdriver is required to loosen and tighten the screws securing the ground wire to the ground block.

2. Run the ground wire to an approved ground. Refer to Appendix A.
3. At the Expansion Port Network (EPN) cabinet(s) (as provided), connect a 6 AWG ground wire to the A-cabinet ground block.
4. Run the ground wire from the Expansion Port Network (EPN) to the Processor Port Network (PPN) cabinet and connect it to the cabinet ground block.

   NOTE:
   If the Expansion Port Network (EPN) cabinet is remotely located from the Processor Port Network (PPN) cabinet (in a separate room or building), run the 6 AWG cabinet ground wire to an approved protective ground.

5. At the Processor Port Network (PPN) cabinet, connect a 10-AWG wire to the cabinet ground block. At a later time, tie-wrap the ground wire (coupled bonding conductor) to the trunk cables, terminating it at the coupled bonding conductor terminal bar at the cross-connect field for the switch. Refer to Figure 4-9 on page 4-13 for an illustration of the coupled bonding conductor.

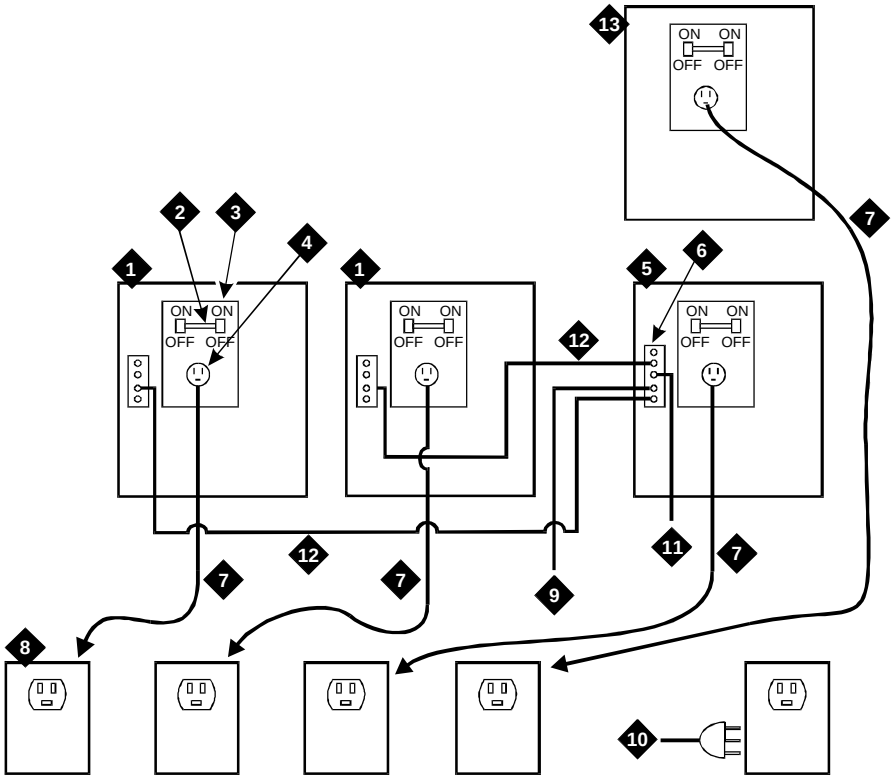


Figure Notes:

1. Expansion Port Network (EPN) Control Cabinet A
2. Circuit breaker
3. Power supply
4. Power receptacle in power supply
5. Processor Port Network (PPN) Control Cabinet A
6. Cabinet-stack single-point ground block
7. Power cord 2.5 meters
8. National Electrical Manufacturer's Association (NEMA) 5-15 or National Electrical Manufacturer's Association (NEMA)5-20 receptacle or equivalent locally provided receptacles
9. 6 AWG ground wire to approved ground
10. Generic 3 Management Terminal (G3-MT)
11. 10 AWG Coupled Bonding Conductor
12. 6 AWG cabinet-stack ground conductor
13. Port cabinet

Figure 4-2. Typical AC Power and Grounding Arrangement for Single-Carrier Cabinet (Rear View)

Connect Battery Leads

To prevent the batteries from discharging, the control cabinet is shipped with the battery lead disconnected. To connect the batteries, perform the following:

At cabinet(s):

1. Ensure the circuit breakers on each cabinet are **OFF**.

   Each cabinet has its own power supply and the circuit breaker is located on the rear of each power supply. See Figure 4-3.

2. Connect the battery lead:

   See Figure 4-3. The battery is near the top of the carrier toward the front-right. The battery leads should be immediately next to the battery, on the left side, and accessible from the front of the cabinet.

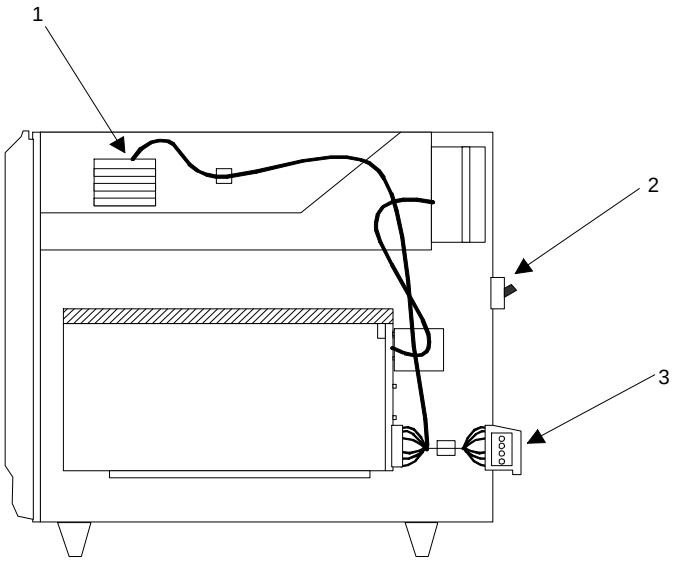


Figure Notes:

1. Battery
2. Circuit Breaker
3. Ground block

Figure 4-3. Single Carrier Cabinet Control Cabinet Battery Location, Right Side View

Connect Power

Connect either AC or DC power as described in this section.

Verify the label near the circuit breaker on the power supply toward the rear of each cabinet corresponds to your local voltage type.

DANGER:
*If the label is different than the voltage type at your site, notify your A T & T representative immediately for a replacement power supply. Do **not**, under any circumstances, connect to power!*

Connect AC Power

Figure 4-2 applies to multiple Processor Port Networks (PPN) and Expansion Port Network (EPN) cabinet arrangements. If multiple Expansion Port Network (EPN) cabinets are required, you must provide the receptacles for the 4-cabinet Processor Port Network (PPN) arrangement in addition to the receptacles for a 2-, 3-, or 4-cabinet Expansion Port Network (EPN) arrangement. Provide one receptacle per single-carrier cabinet.

1. Verify the circuit breakers are **OFF** .
2. Connect cabinet AC line cords to the AC power receptacles. The AC line cords for the cabinets must first be connected to the cabinets and then to the AC power receptacles.

Connect DC Power

The following procedures apply to both the Processor Port Networks (PPN) and Expansion Port Networks (EPN).

Figure 4-4 shows a typical power and grounding layout for a DC-powered single-carrier cabinet. The size of the wire required for the -48 VDC and -48 volt return must ensure the -48 VDC supplied by the battery plant to the cabinets will be maintained between -42.5 and -52.5 volt DC. This ensures proper operation and prevents hardware damage.

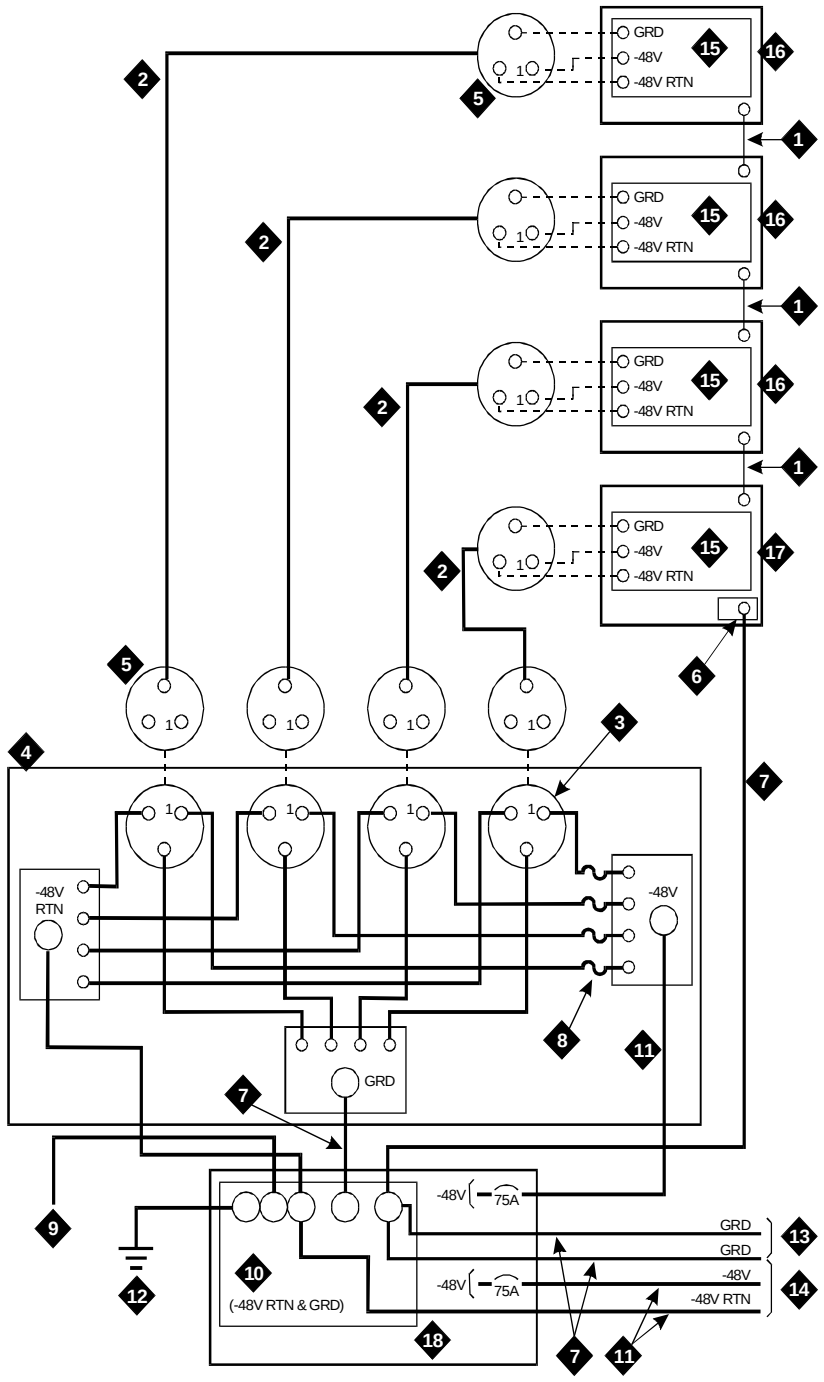

GRD
-48V
-48V RTN
15
16
17
1
2
5
6
3
4
7
8
11
-48V RTN
-48V
GRD
9
12
10
(-48V RTN & GRD)
18
-48V
75A
GRD
GRD
13
-48V
-48V RTN
14

Figure Notes:

1. Ground plate (three required)
2. 3 Conductor No.10 line cord (one per cabinet)
3. Plug (male)
4. J58890CG DC Distribution Unit
5. Receptacle (female)
6. Cabinet single-point ground block
7. 6 AWG wire
8. 25 Amp Fuse (4 required)
9. Coupled bonding conductor to terminal bar at cross-connect field
10. Ground discharge bar
11. 1 AWG wire
12. Approved ground
13. To cabinet single-point ground block in next port cabinet
14. To DC distribution unit for next port network
15. 676B DC Power Supply
16. Port Cabinet
17. Control Cabinet
18. Battery Plant

Figure 4-4. Typical Single-Carrier Cabinet System Direct Current (DC) Power and Grounding Wiring

CAUTION:
Grounding of the system shall comply with the general rules for grounding contained in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable code in your area. See Appendix G for more information.

Determine the approved ground in the building to be wired. See Appendix A. Connect your system to an approved ground as described below.

Connect Power Plant Ground

To connect the power plant ground, complete the following steps:

1. At the DC power cabinet, connect a 1 AWG ground wire to the GROUND DISCHARGE bar.
2. Route the ground wire out of the cabinet and terminate it on the approved ground (see Figure 4-5). The approved ground must be identified with a grounding tag (AT&T FORM 15657NR, or equivalent).

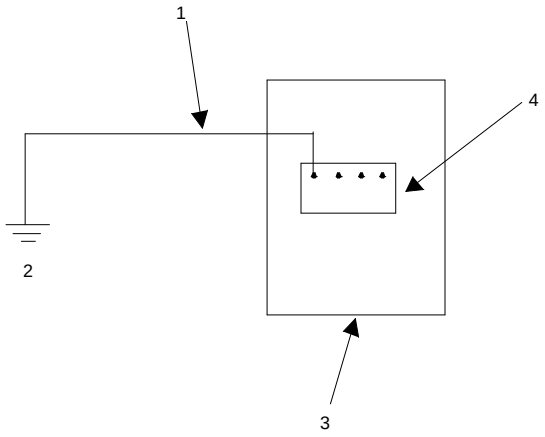


Figure Notes:

1. 1 AWG wire
2. Approved ground. Must be connected to an approved ground using the correct gauge cable, terminated with a listed clamp, and identified with an AT&T ground tag or equivalent.
3. DC Power Cabinet
4. Ground discharge bar

Figure 4-5. Power Plant Grounding

Connect Frame Ground

Connect the 6 AWG frame ground cable to the cabinet frame by following these steps:

1. Measure and cut a length of 6 AWG cable. Use the provided cable or measure and cut a length of 6 AWG cable long enough to reach between the GROUND CONNECTION terminal in the DC Battery Cabinet and the GROUND DISCHARGE bar in the DC Power Cabinet.
2. Crimp terminal lugs on each end of the wire. Terminal lugs are furnished as part of D-181895, Kit of Parts.
3. At DC power cabinet, connect wire to the GROUND DISCHARGE bar.
4. Route the wire through one of the holes in the side of the cabinet and terminate it on the GROUND CONNECTION terminal in the DC Battery Cabinet (see Figure 4-6).

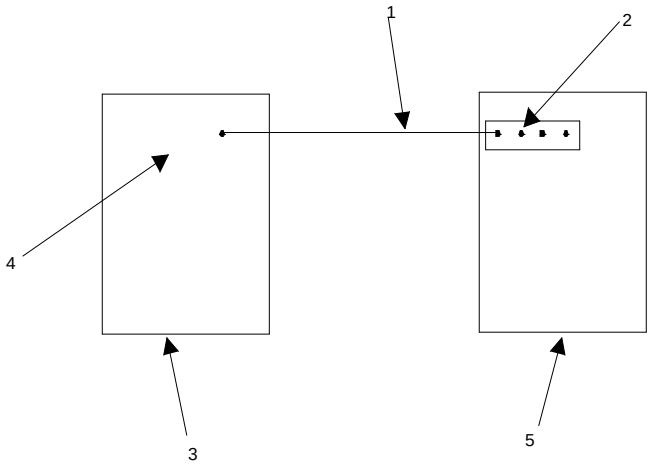


Figure Notes:

1. 6 AWG wire
2. Ground discharge bar
3. DC battery cabinet
4. Ground connection terminal
5. Power distribution unit

Figure 4-6. Frame Ground Grounding

Connect DC Power Distribution Box Grounding

Run the 6 AWG ground cable from the DC Power Cabinet to each DC Power Distribution Unit, using the following steps:

1. At the DC Power Cabinet, connect 6 AWG wire to the GROUND DISCHARGE bar. Route the cable to the DC Power Distribution Unit. Connect the cable to the GRD Terminal Block in the DC Power Distribution Unit (see Figure 4-6).
2. Repeat Step 1 for each remaining DC Power Distribution Unit.

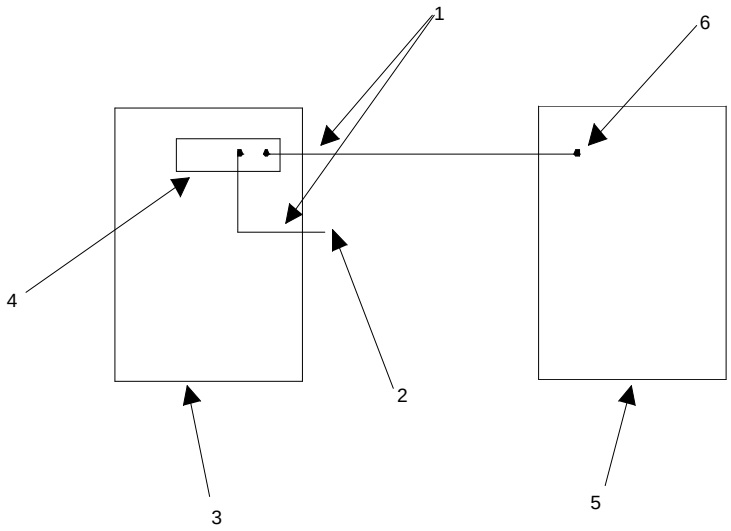


Figure Notes:

1. 6 AWG wire
2. To additional J58890CG as provided
3. DC power cabinet
4. Ground discharge bar
5. Power distribution unit
6. Ground terminal strip

Figure 4-7. DC Power Distribution Unit Grounding (J58890CG)

Connect Single-Carrier Network Grounding

Each port cabinet must have a 6 AWG ground cable connected from the ground block of Control Cabinet A to the DC Power Cabinet.

Use the following instructions to connect each network ground:

1. At the DC Power Cabinet, connect a 6 AWG cable to the GROUND DISCHARGE bar. Route the cable to the port Cabinet Carrier A. Connect the cable to the single-point ground block in the Control Carrier (see Figure 4-7).
2. Repeat Step 1 for each port Cabinet Carrier A in the system.

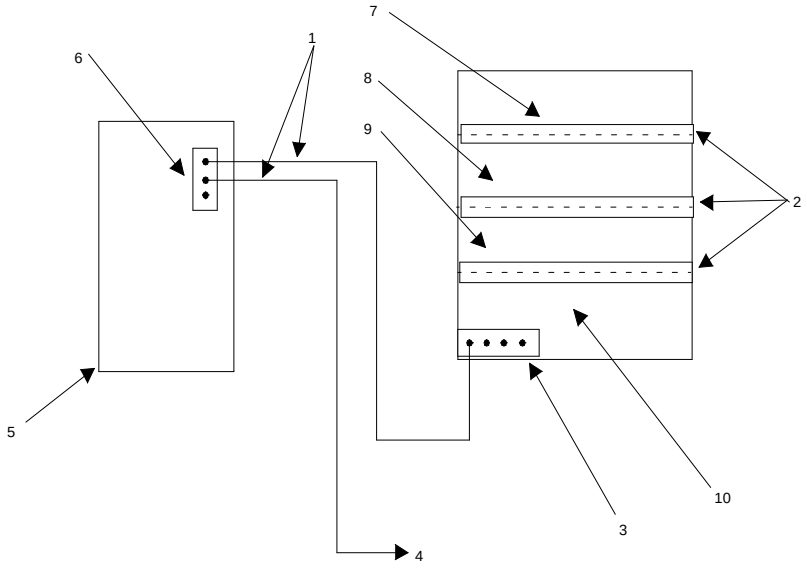


Figure Notes:

1. 6 AWG wire
2. Ground plate
3. Cabinet stack single point ground block
4. To additional Port Cabinet as provided
5. DC Power Cabinet
6. Ground discharge bar
7. Port Cabinet D
8. Port Cabinet C
9. Port Cabinet B
10. Port Cabinet A

Figure 4-8. Ground Connection for Single-Carrier Network

Coupled Bonding Conductor (CBC)

The coupled bonding conductor (CBC) connects the cabinet single-point ground block to the approved protective ground located nearest the (telephone company owned) protector block at the building entrance facility. Follow these steps to connect the coupled bonding conductor:

1. Connect a 10 AWG wire to the power cabinet ground discharge bar. See Figure 4-9).
2. Repeat for each port network cabinet.

NOTE:
A Coupled Bonding Conductor (CBC) must be tie-wrapped to all trunk cables and terminated at the coupled bonding conductor terminal bar.

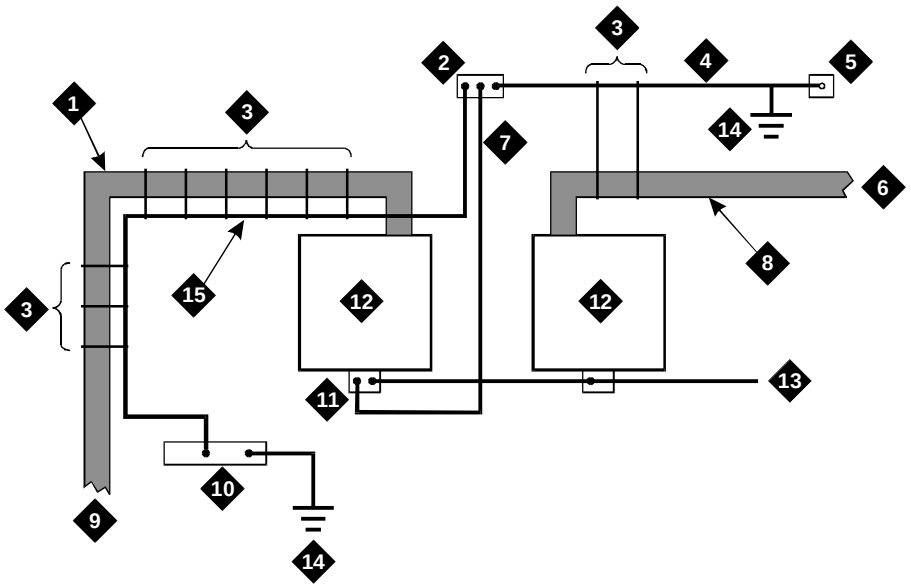


Figure Notes:

1. 25-Pair tip and ring cables to network cabinets.
2. Coupled bonding conductor terminal block
3. Tie wraps
4. Cable shield or six spare pairs
5. Ground on carbon block protector or equivalent
6. To external trunk interface
7. 10 AWG wire
8. Trunk cable
9. To network cabinets
10. Battery plant ground discharge bar for DC or AC system single point ground
11. Cross-connect ground block
12. Cross-connect field
13. To other cross-connect ground blocks
14. Approved Ground
15. Couple Bonding Conductor

Figure 4-9. Coupled Bonding Conductor

CAUTION:
System grounding shall comply with the general rules for grounding contained in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or your applicable local electrical code. See Appendix A for a description of "approved ground."

Connect DC Power to Networks

Each port cabinet stack must have a DC Power Distribution Unit associated with it. Each DC Power Distribution Unit furnishes DC power for four single-carrier cabinets. The DC Power Distribution Unit comes equipped with four power cords. Each 10 foot (3 meter) cord is equipped with the appropriate connectors.

Perform the following to connect each network to the DC Power Distribution Unit:

1. Connect 1 AWG wire for -48V and -48V return from DC Battery Plant to each DC Power Distribution Unit.
2. At the J58890CG DC Power Distribution Unit, connect the power cable to an available receptacle. Route the cable to the rear of Cabinet A. Connect the power cord to the DC connector on the rear of Cabinet A.
3. Repeat Step 1 for Cabinets B, C, and D as required.
4. Repeat Steps 1 and 2 for all remaining port cabinets.

Connect AC Power to DC Power Cabinet

Connect the AC power to the DC Power Cabinet by performing the following:

1. Ensure the associated circuit breakers at the AC power panel **OFF**.
2. Have an electrician connect AC power leads to the rectifiers using the instructions provided with the rectifiers in the DC Power Cabinet. Each rectifier should have its own branch circuit. Terminate leads on the AC INPUT terminal block of each rectifier.

Test DC Power Plant

To test the DC power plant, refer to the Installation Test Procedure (ITP) in the *LINEAGE 2000 ECS Power System Battery Plant Product Manual*, 167-790-020.

Connect Stand-by Power

An external, commercial Uninterruptible Power Supply (UPS) or a battery backup arrangement may be provided. Stand-by power is engineered to customer needs depending on the size and configuration of the system.

The AT&T GBCS Power System is recommended; use the installation instructions provided. See your AT&T representative for more information.

Locate and Connect Time Division Multiplexing (TDM) Bus

Locate the white fabric-covered Time Division Multiplexing (TDM) bus cable. Refer to Table 4-1 for slot information.

Follow these instructions to connect the bus to the appropriate slots.

1. Remove the Time Division Multiplexing (TDM) bus terminator on Slot 22 of Control Cabinet *A* and move it to the Time Division Multiplexing (TDM)/Local Area Network (LAN) pinfield at the equipment location (EQL) on the top port cabinet. See Figure 4-10.
2. Connect the bus cables as shown in Figure 4-10. The cable is located behind the lower panel when the cabinet is shipped.

Table 4-1. Time Division Multiplexing (TDM) Bus Connections

Configuration	Cabinet/Slot	Backplane Time Division Multiplexing (TDM)/Local Area Network (LAN) Pinfield at EQL Cabinet/Slot
Processor Port Network (PPN), High or Critical Reliability	A/22	B/02
	B/22	C/00
	C/17	D/00
Expansion Port Network (EPN), Standard, High or Critical Reliability	A/18	B/00
	B/17	C/00
	C/17	D/00
Processor Port Network (PPN), Standard Reliability	A/22	B/00
	B/17	C/00
	C/17	D/00

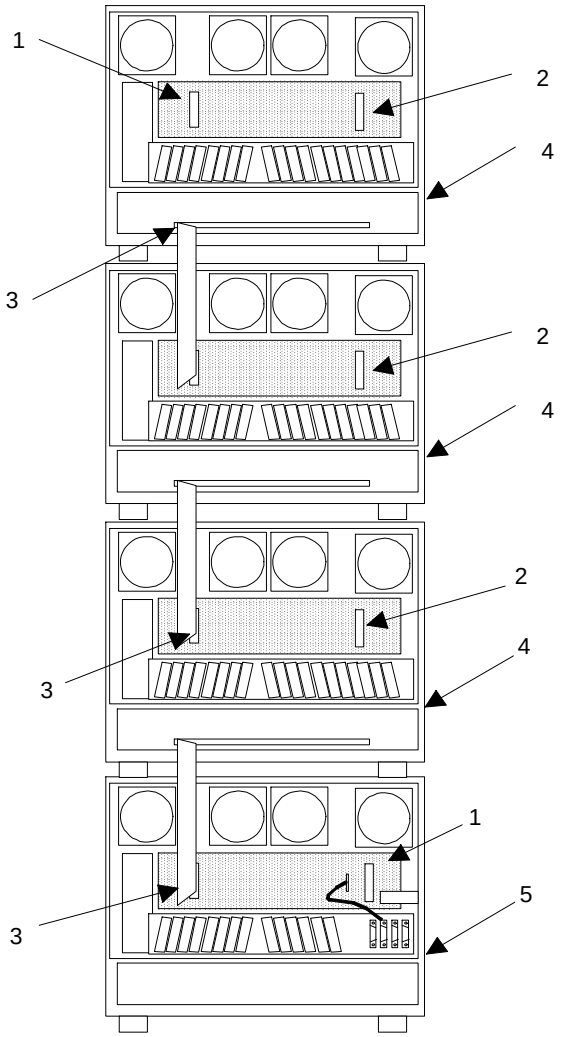


Figure Notes:

1. Time Division Multiplexing (TDM) bus terminator AHF110 on Time Division Multiplexing)/Local Area Network pinfield (TDM/LAN)
2. Time Division Multiplexing/Local Area Network pinfield (TDM/LAN) at equipment location (EQL) (see Table 4-1 on page 4-15)
3. Time Division Multiplexing (TDM) bus cable WP91716 L3
4. Port cabinet (standard reliability), or duplicate control cabinet (high or critical reliability)
5. Control cabinet

Figure 4-10. Time Division Multiplexing (TDM) Bus Connections for Standard-Reliability Processor Port Network (PPN)

Locate and Connect Inter-Cabinet Cables (ICC)

Connect the Inter-Cabinet Cables (ICC) using these steps:

1. Remove the Inter-Cabinet Cable (ICC) from the lower back shelf of the cabinet.
2. Connect the cables as shown in Figure 4-11 and Table 4-2.

Table 4-2. Inter-Cabinet Cable Connections

	From Cabinet A		To Cabinet B	
Cabinet	**Carrier**	**Connection**	**Carrier**	**Connection**
Processor Port Network (PPN)	J58890L	(ICC) A	J58890M	(ICC) A
		(ICC) B		(ICC) B
		(ICC) C		(ICC) C
Expansion Port Network (EPN)	J58890N	(ICC) A	J58890H	(ICC) A
		(ICC) B		(ICC) B

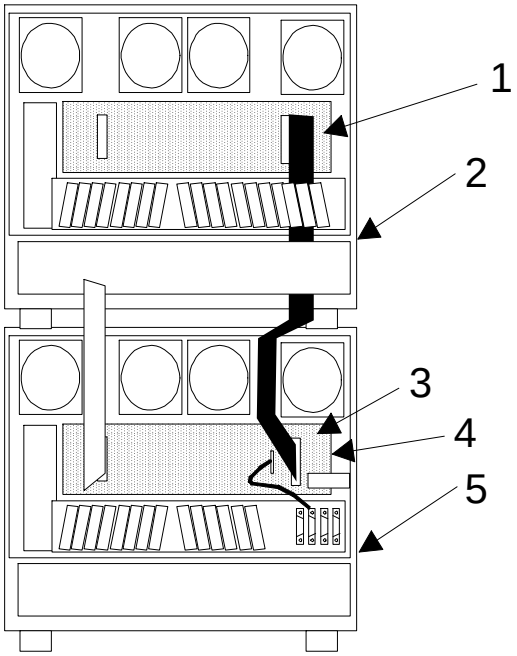


Figure Notes:

1. Pinfield per Table 4-2
2. Cabinet in Position B
3. Inter-Cabinet Cables
4. Backplane
5. Control Cabinet A Position

■ Rear of Cabinets Shown

Figure 4-11. Inter-Cabinet Cable (ICC) Connections for Standard Reliability Expansion Port Network (EPN) Cabinet Stack

Install Fibre-Optic Cables

This section discusses the hardware and methods required to connect and route fibre-optic cables.

The Expansion Port Network (EPN) cabinet is normally positioned next to the Processor Port Network (PPN) cabinet(s), but may also be installed in a different room or a different building. Fibre-optic cables connect the cabinets together.

Fibre-Optic Cable Operation

Fibre-optic cables carry signals between the cabinets that compose your switch. To do this, the electronic signals at the connectors on the back of a cabinet are converted into optical signals. The optical signals from another cabinet are then converted back into electronic signals. AT&T provides opto-electronic devices, the 9823-type lightwave transceivers, that perform this task.

A completed signal from one cabinet goes through a transceiver, a fibre-optic cable, and another transceiver to reach another cabinet. If the two cabinets are close together, the optical signal may go through a single, directly connected fibre-optic cable. If the two cabinets are far apart, it may be convenient to connect the cabinets through the cross-connect field.

Figure 4-13 shows how to connect fibre-optic cables for direct connections.

Figure 4-14 shows how to connect fibre-optic cables through a cross-connect field. .

Locate Fibre-Optic Cable Connections

Packed with the system is a Customer Service Document (CSD) that includes an “Inter-Cabinet Cable Running List.” Each row on the list represents a fibre-optic cable connection.

The list includes the AT&T comcode of the cable to be used, its length (in feet) and the addresses of each cable’s source and destination. These addresses include the numbers of the cabinets, carrier positions, and slots to which you are to connect the cables. Use the information from the Running List to determine where to connect each fibre-optic cable.

Figure 4-12 illustrates an example Running List.

Connection From SD67975-01	Cable Code	Length	From			To		
			Cabinet	Position	Slot	Cabinet	Position	Slot
CAD3	104266465	20 ft.	01	C	02	02	B	02
CAD3	104266465	20 ft.	01	D	02	02	A	01

Figure 4-12. Typical Fibre-Optic Cable Running List

In the example Running List in Figure 4-12, connect a cable labeled 104266465 (20 feet long) from Cabinet 1, Carrier C, Slot 2, to Cabinet 2, Carrier B, Slot 2.

NOTE:
The following tasks refer to the Running List and offer typical installation instructions. If any conflict between specific details in the Running List and the instructions given in the following procedures arise, cable your system according to the Running List provided with your system.

General Rules and Recommendations for Connecting Fibre-Optic Cables

Although fibre-optic cables withstand some misuse, it does require careful handling and routing.

Follow these rules and recommendations when installing fibre-optic cables:

Rule 1

Cross-connect the fibre-optic cable between two 9823-type lightwave transceivers. That is, run the cable from the connector marked TX on one transceiver to the connector marked RX on the other transceiver, and in reverse for the other cable.

Do this for each connection (row) on the Running List contained in the Customer Service Document (CSD) shipped with your system. See Figure 4-12 for a sample Running List.

Rule 2

Use the 9823A (shortwave) transceiver for distances of up to 4900 feet. Use the 9823B (longwave) transceiver for distances of up to 25,000 feet. Ensure all 9823As are connected to 9823As and all 9823Bs are connected to the corresponding 9823Bs.

Rule 3

Route fibre-optic cables away from groups of other cables where they may be stretched by the weight of metal cable bundles, as fibre-optic cables are quite flexible.

Rule 4

Avoid bending fibre-optic cables to a radius smaller than 1-1/2 inches (4 cm), to prevent mechanical stress on the cables, as they are rather delicate. Plan your use of cable ties to avoid crimping the cable or creating a fixed stress point where, at a later time, movement of the cable causes it to exceed the minimum bend radius.

Rule 5

Ensure fibre-optic cables are not pressed against any sheet metal edges by subsequently installed cables.

Recommendation

In some such systems it may be required to run fibre-optic cables with the input/output cables, such as in the cable slack manager or under a raised floor. In these situations, protect the cable by running it in a dedicated area if possible. When you must run the cable with other cabling, protect it by running it through flexible conduit.

In the following illustration, the slot locations are for example purposes only.

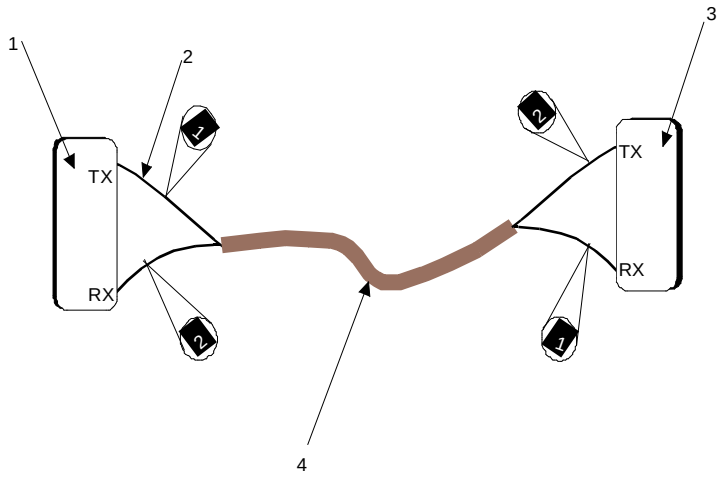


Figure Notes:

1. Processor Port Network (PPN) Cabinet A Slot 2A01 / 9823-Type lightwave transceiver
2. FL2P-P-20 Fiber optic cable
3. Expansion Port Network(EPN) Cabinet A Slot 1A01 / 9823-Type lightwave transceiver
4. Fiber optic cable sheath, containing two fibers, each labeled 1 and 2, respectively

Figure 4-13. Fibre-Optic Cable Installation Between Shortwave Transceivers, Direct Connection

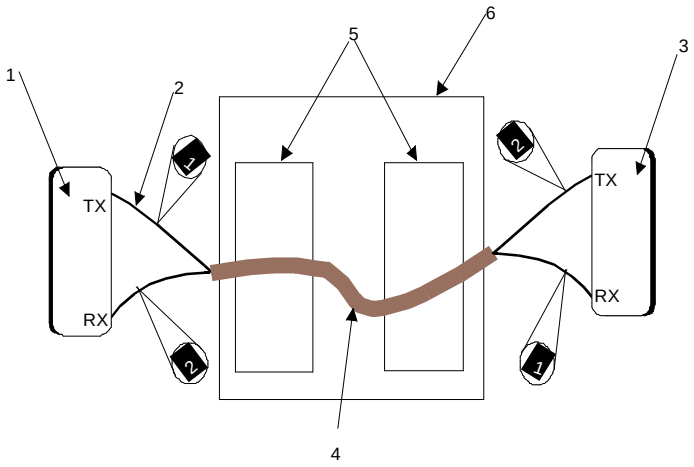


Figure Notes:

1. Processor Port Network (PPN) Cabinet A Slot 2A01 / 9823-Type lightwave transceiver
2. FL2P-P-20 Fiber optic cable
3. Expansion Port Network (EPN) Cabinet A Slot 1A01 / 9823-Type lightwave transceiver
4. Fiber optic cable sheath, containing two fibers, each labeled 1 and 2, respectively
5. 100A LIU
6. Cross connect field

Figure 4-14. Fibre-Optic Cable Installation Between Longwave Transceivers Through Fibre-Optic Cross-Connect Field

Raised Floor or Cable Slack Managers

Figure 4-15 shows the recommended fibre-optic cable routing for a single-carrier cabinet system with a cable slack manager or on a raised floor.

In these situations, use the following steps to route the cable:

1. Route the fibre-optic cable up toward the top of the cabinet. The excess cable should be looped and draped from the B25A cable clamp on the top ground plate in the stack.
2. Dress the cable running up the back of the cabinets by tie wrapping the cable to the outside of the B25A cable clamp (do not put the cable inside the clamp holding the B25A cables).

CAUTION:
Do not route fibre-optic cables and the B25A cables together.

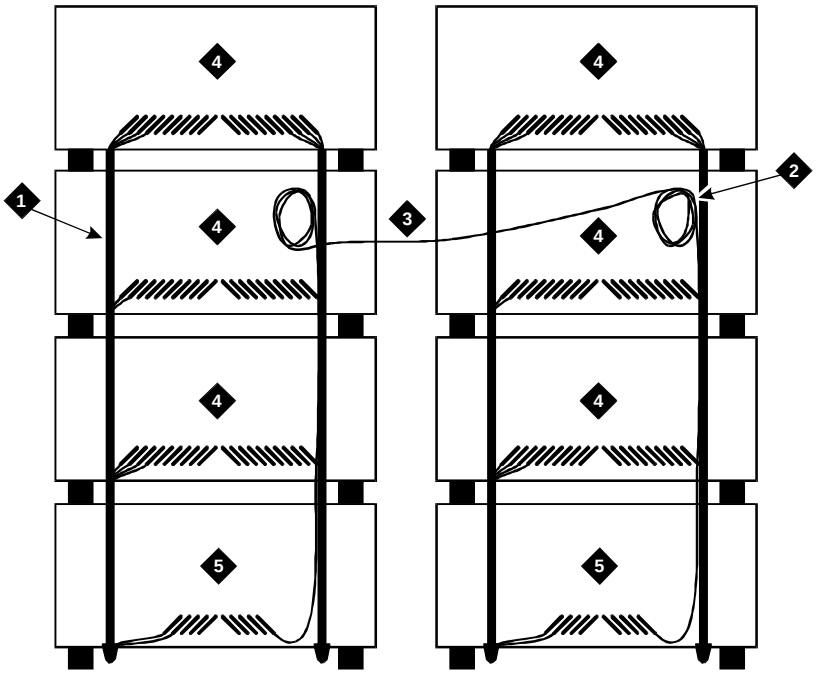


Figure Notes:

1. B25A Cables
2. Loop and Drape Excess Fiber Optic Cable. Do Not Route Fiber Optic Cable and B25A Cables Together.
3. Fiber Optic Cable Sheath
4. Port Cabinet
5. Control Cabinet

Figure 4-15. Single-Carrier Cabinet Fibre Routing

Cable Connections

When routing fibre-optic cables, connect the cables (according to the Running List provided in the Customer Service Document (CSD)) to the transceiver, and plug the transceiver into the appropriate slot on the back of the cabinet, as illustrated in Figure 4-16 through Figure 4-18.

Standard Reliability Fibre-Optic Cable Connections

For Standard Reliability system configuration, route the fibre-optic cable as illustrated below.

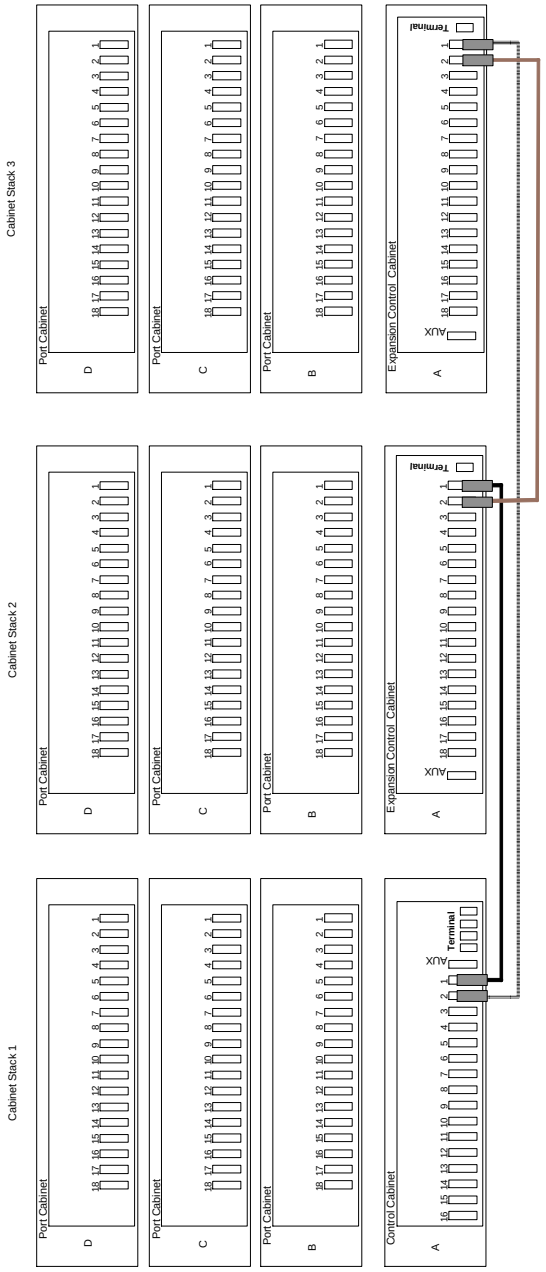


Figure 4-16. Fibre-Optic Cable Connections for Standard Reliability Single-Carrier Cabinet System

High Reliability Fibre-Optic Cable Connections

For High-Reliability system configuration, route the fibre-optic cables as illustrated below.

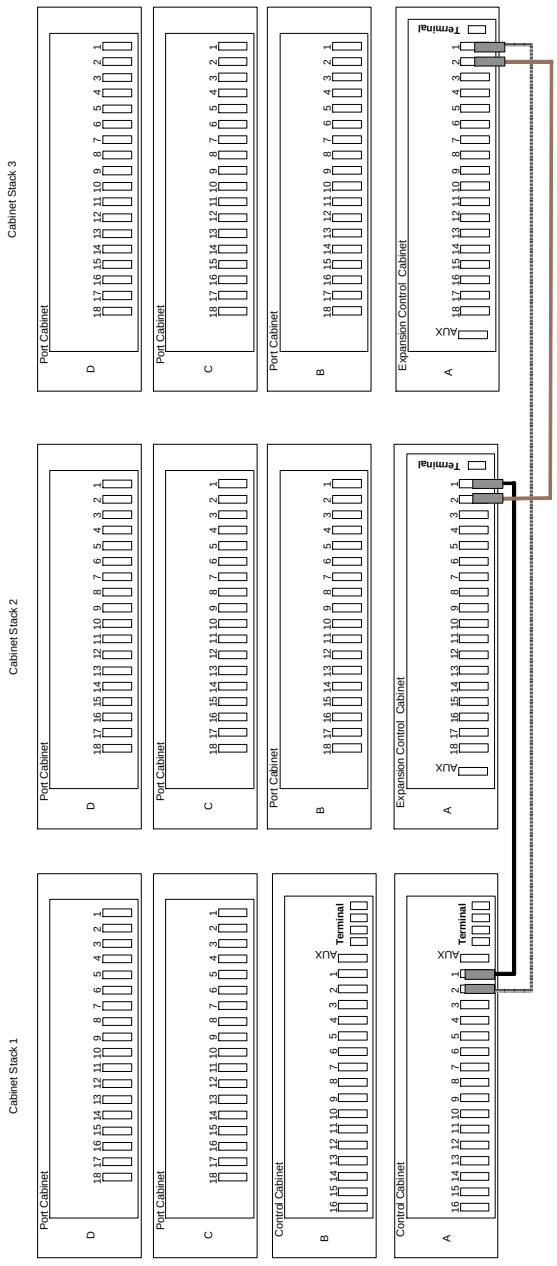


Figure 4-17. Fibre-Optic Cable Connections for High Reliability Single-Carrier Cabinet System

Critical Reliability Fibre-Optic Cable Connections

For Critical Reliability system configuration, route the fibre-optic cables as illustrated below.

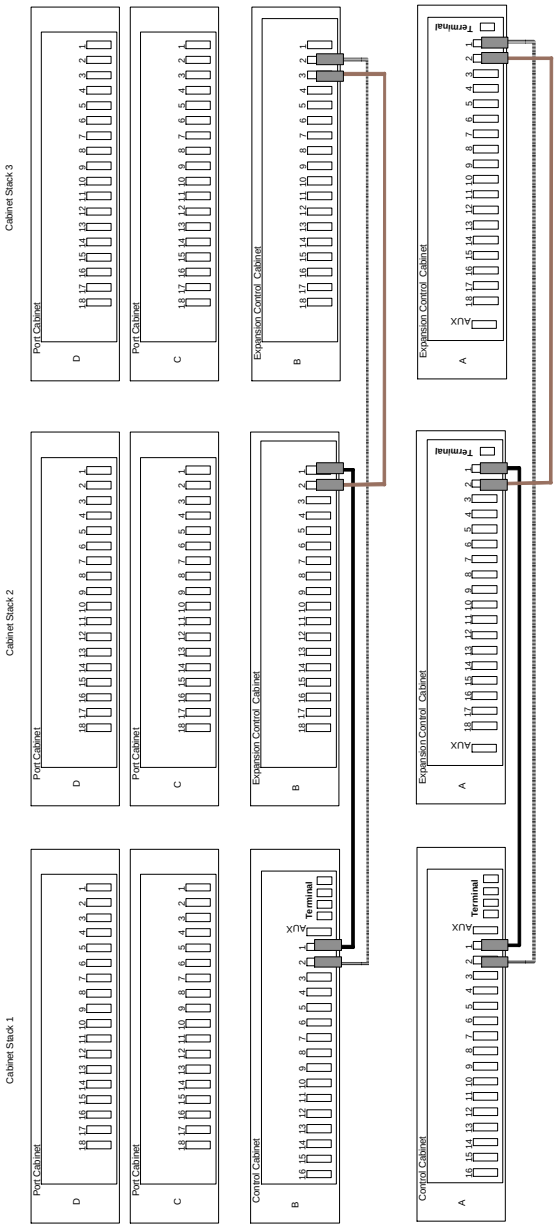


Figure 4-18. Expansion Port Network Fibre-Optic Cable Connections for Single-Carrier Cabinet with Critical-Reliability Switch

Verify Port Cabinet Address Plugs

The Cabinet Address Plug is a jumper and is required for single-carrier port cabinets *only*.

On the backplane of a port cabinet, to the right of slot 00, a group of six pins is marked for the cabinet (carrier) address plug jumper connections. Verify the address plug for each port carrier is in the correct location (see Figure 4-19).

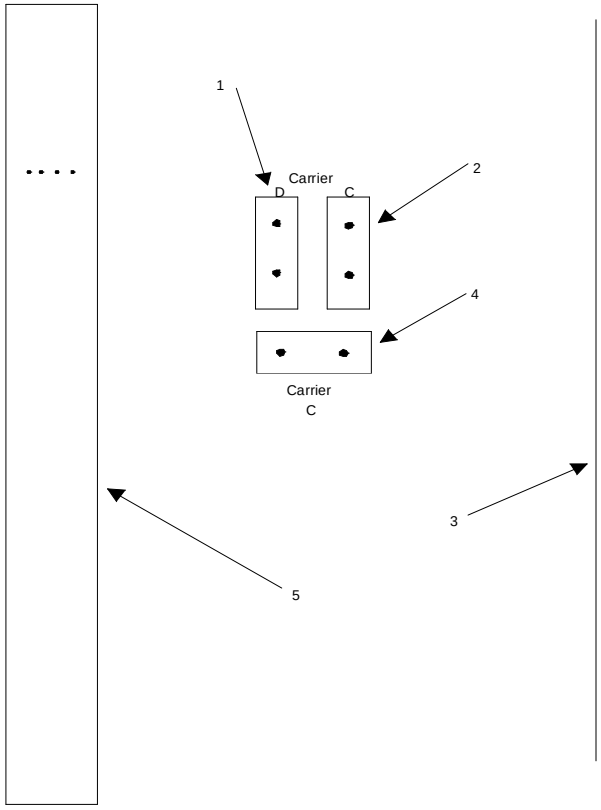


Figure Notes:

1. Address Plug
2. Jumper
3. Right side at back of cabinet
4. Jumper
5. Back plane of slot 00

Figure 4-19. Port Cabinet Address Plug Location

Install Back Panels

Install the back panels, tightening the screws when all panels are in place. Allow the screws labeled callout 4 in Figure 4-21 on page 4-31 to remain loose.

Install Ground Plates

The ground plate (Figure 4-20) provides the ground connection for the cabinets and stabilizes the cabinets.

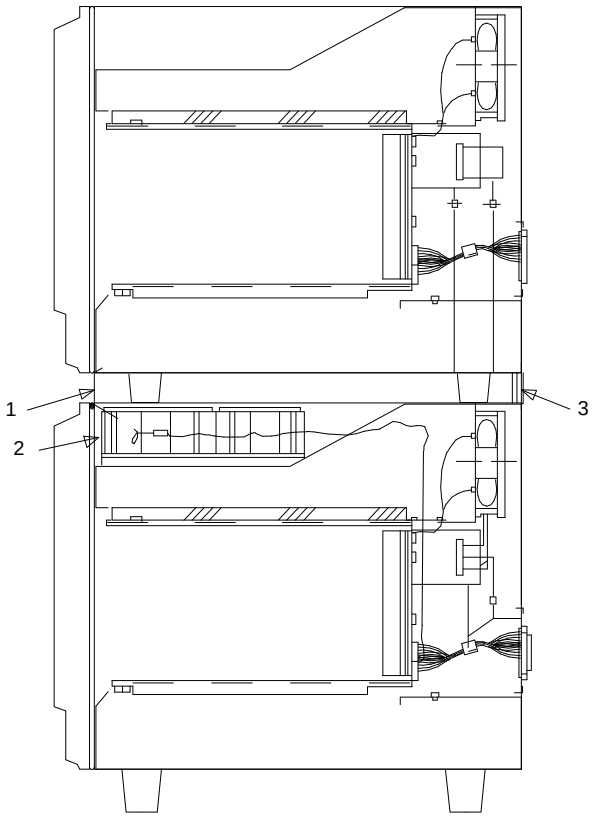


Figure Notes:

1. Front Ground Plate
2. Battery
3. Back Ground Plate

■ Side View of 2-Cabinet Port Network

Figure 4-20. Ground Plate

See Figure 4-22 and Figure 4-23 for illustrations of the ground plate and cable clamp positions.

Install Ground Plates on Systems with Earthquake Protection

Refer to Appendix B for earthquake protection procedures.

Install Ground Plates on Systems without Earthquake Protection

A ground plate is required to connect each cabinet together (see the following figures). To install the ground plate, complete the following steps:

1. At the back of the cabinets, replace the upper and lower panels (allowing the screws labelled with callout 4 to remain loose). See Figure 4-21.

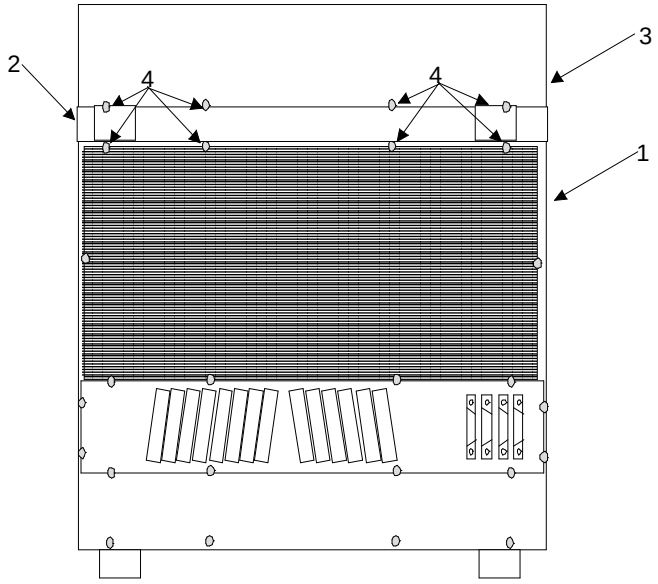


Figure Notes:

1. Cabinet in A position
2. Ground plate to attach between cabinets
3. Cabinet in B position
4. Screws to loosen

Figure 4-21. Back Panel Screw Locations

2. At the upper cabinet, place the top of the ground plate over the bottom of the lower-back panel so the four screws at the bottom of the lower-back panel fit through the four ground plate keyhole slots. The bottom edge of the ground plate should overlap at the top edge of the lower back panel.
3. Slide the ground plate down over the top of the upper-back panel of the lower cabinet so the four screws attaching the upper-back panel fit through the four lower ground plate slots.
4. Ensure the exposed portion of the Time Division Multiplexing (TDM) bus cable and inter-cabinet cables (ICC) do not get pinched between the cabinets.
5. Tighten all screws.
6. Repeat this procedure for each cabinet.

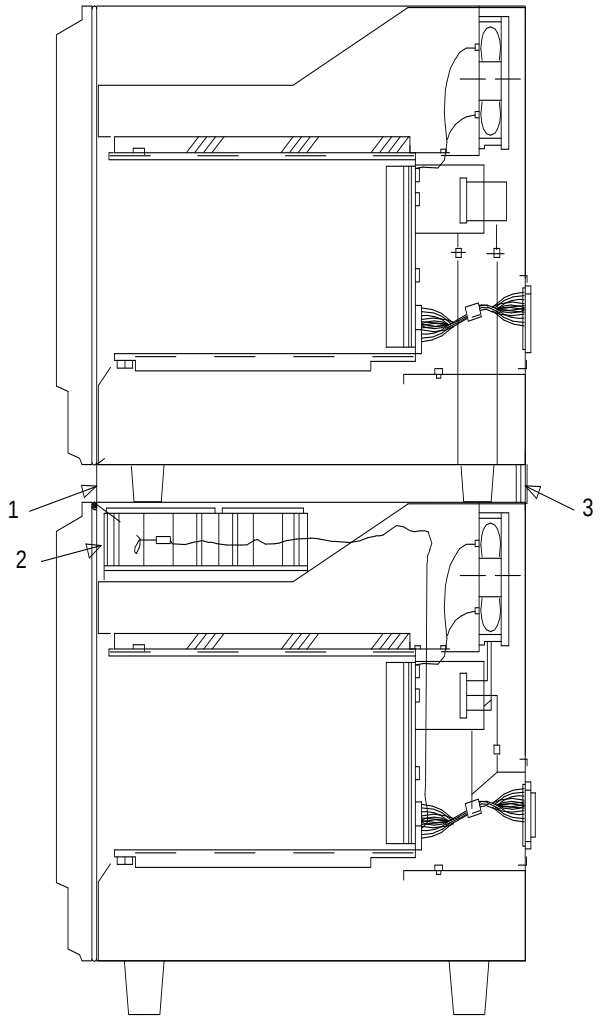


Figure Notes:

1. Cabinet Clip
2. Battery
3. Back Ground Plate

■ Side View of 2-Cabinet Port Network

Figure 4-22. Single-Carrier Cabinet Ground Plate, Cabinet Clip, and Battery Locations

Install Cable Clamps

At the back of the cabinets, on each ground plate, install two cable clamps using the screws provided (see Figure 4-23). These clamps hold the 25-pair input/output or cross-connect field cables in place.

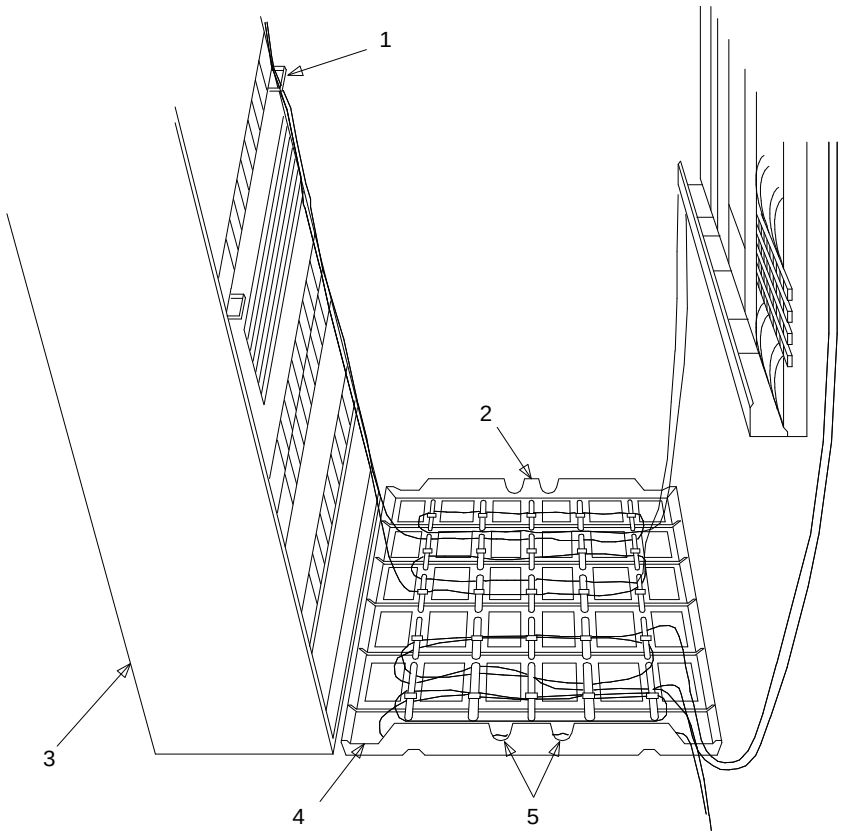


Figure Notes:

1. Cable Clamp
2. Cable Slack Manager
3. Switch Cabinet
4. Cabinet Trough for Port Cables
5. Spare Center Troughs

Figure 4-23. Location of Cable Clamps

Install Front Plates

The front plates provide electromagnetic radiation and radio frequency (RF) shielding and earthquake protection.

If you do not have a requirement for electromagnetic radiation shielding, radio frequency shielding, or earthquake protection, use the cabinet clips as described in this section.

Install Front Plates on Systems with Earthquake Protection

Refer to Appendix B to install the front plates to help provide earthquake protection and radiation shielding.

Front plates are used in place of cabinet clips (as described in Appendix B), for earthquake protection.

Install Cabinet Clip On Systems without Earthquake Protection

A cabinet clip is required between each cabinet to stabilize the cabinets.

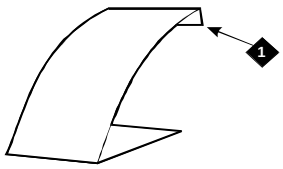


Figure 4-24. Cabinet Clip

At the front of the cabinets, install a cabinet clip (Figure 4-24) between each cabinet by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet (see Figure 4-25).

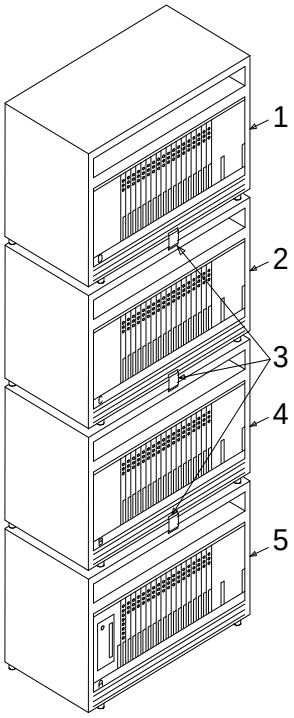


Figure Notes:

1. Port Cabinet D
2. Port Cabinet C
3. Cabinet clips
4. Port Cabinet B
5. Basic Control Cabinet A

Figure 4-25. Location of Cabinet Clips

Install Telecommunications Cabling

5

This chapter describes how to install telecommunications cables and cross-connect equipment.

The specific equipment being installed varies on what was ordered for your site. Use the material presented in this chapter as an example.

Install the Cross-Connect Field

This section describes how to connect to the cross-connect field.

Typical Cross-Connect Field Using 110-Type Hardware

The cross-connect field is normally located directly behind the switch cabinet. Figure 5-1 shows a typical cross-connect field installation using 110A-type terminal blocks. Allow at least 3 feet (1 meter) between the back of cabinet and the 110-type hardware.

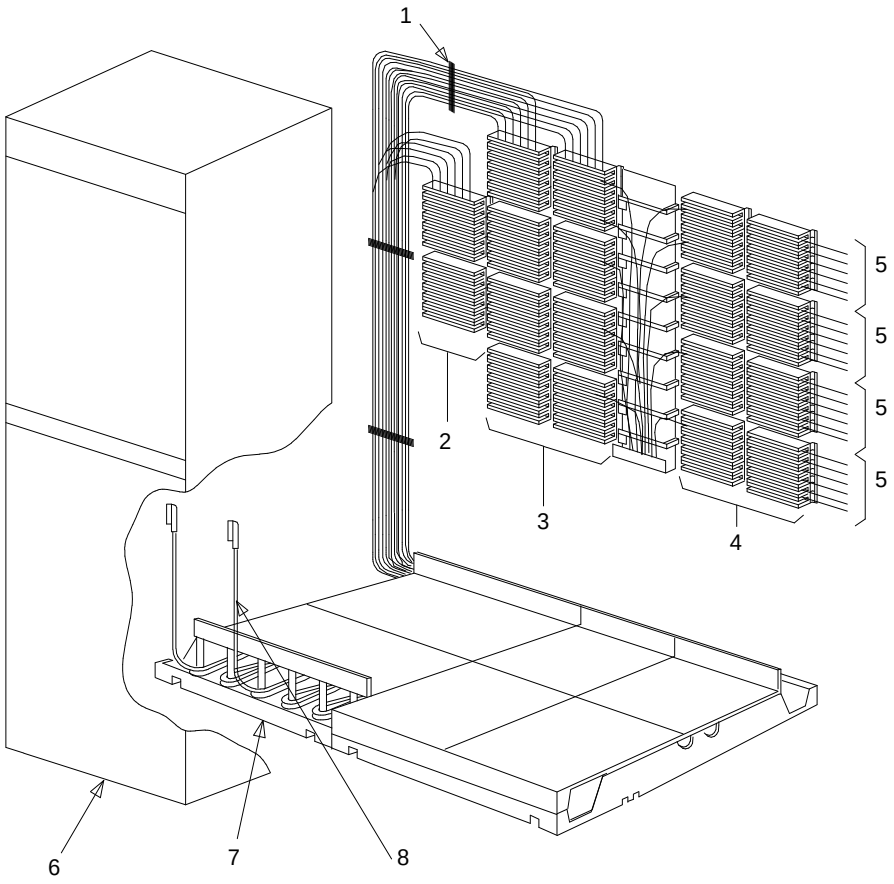


Figure Notes:

1. D Ring
2. Trunk auxiliary field
3. Port distribution field
4. Station distribution field
5. Station cables
6. Switch cabinet
7. Z113A cable slack manager
8. 25-pair cable to switch cabinet

Figure 5-1. Typical Cross-Connect Field Installation: 110A-Type Terminal Blocks

In Figure 5-1, approximately 576 4-Pair or 768 3-Pair Station Capacity is illustrated.

Hardware Installation

These hardware installation instructions are written so one system technician can install the following equipment:

- Cross-connect field
- Cable slack managers
- Sneak current protector (507B)

The preferred cross-connect field location is directly behind the switch cabinet.

Install Cable Slack Managers

To install the cable slack managers (Figure 5-2), proceed as follows:

1. Place the Z113A cable slack manager against the wall under the cross-connect field, aligning the left side of the cable slack manager with the first terminal block of the trunk/auxiliary field.
2. Place the next cable slack manager beside the previous cable slack manager. Align the tabs and interlocks and snap the cable slack managers together.
3. Repeat Step 2 until all cable slack managers are installed.

NOTE:
Nine holes (1/4-inch or 0.6 cm) are provided in a cable slack manager base for earthquake mounting. Also, if a cable slack manager base is mounted on an uneven floor, shims may be required to level it and insure proper fit of the covers. Holes are provided in the sides of the base for bolting cable slack managers together. Bolts and shims are not provided.

Route Cables from Cabinet to Cross-Connect Field

Use the following guidelines when routing cables from the cabinet to the cross-connect field.

- When cable routing is to the top/bottom of the cross-connect field, each port cable is connected at the cabinet and routed along the front trough of the cable slack manager to the connecting/terminal block. The cable is then terminated.
- Enough slack must be left at the cabinet end of the cable to allow for proper dressing of the cables (Figure 5-3).

- Route the cable from the cabinet to the wall. Place the cable beside one of the rows of columns in the cable slack manager (see following note).

  NOTE:
  Retainers mounted on the columns keep the cable from protruding above the top of the base of the cable slack manager.

- Determine the length of the cable required to reach from the cable slack manager to the assigned connecting/terminal block.
- The cable must be supported on the wall.
- Cable slack is stored by coiling the cable around the columns in the cable slack manager. The first run should always go across the full length of the five columns in the cable slack manager.
- Connect the cable to the assigned connecting/terminal block.

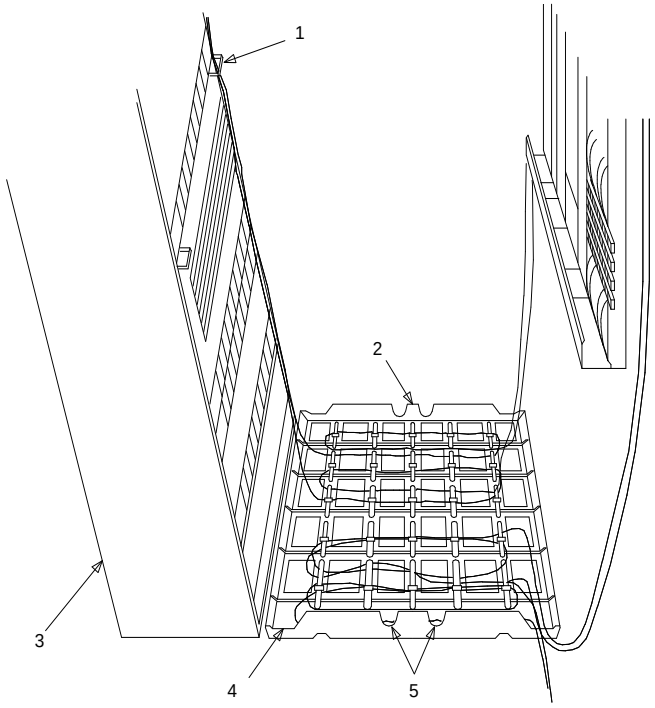


Figure Notes:

1. Cable Clamp
2. Trunk Auxiliary Field
3. Switch Cabinet
4. Cabinet Trough for Port Cables
5. Spare Center Troughs

Figure 5-2. Cable Routing Through Cable Slack Manager for Single Cabinet Installation

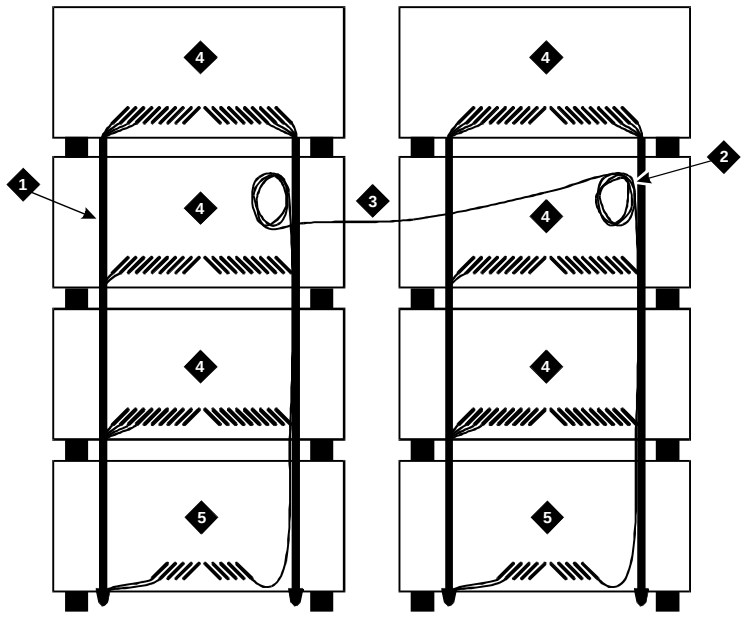


Figure Notes:

1. B25A cables
2. Loop and Drape Excess Fibre-Optic Cable. Do Not Route Fibre-Optic Cable and B25A Cables Together.
3. Fibre-Optic Cable Sheath
4. Port Cabinet
5. Control cabinet

Figure 5-3. Typical Port Cable Installation at Switch Cabinet

Connect Control Carrier Outputs Cable

Plug the connector cable in the **AUX** connector on the rear of the control carrier. Route the connector cable through the cable slack manager to the assigned connecting block in the yellow field of the trunk/auxiliary field.

Refer to Table 9-9 for pinout information.

The output wiring connections for the Initialization Administration System (INADS) trunk interface are described in "Install Initialization and Administration System (INADS) Interface" on page 9-21.

Label Cables

Label the cables as described in this section.

The port label shown in the next figure is installed on both ends of the 25-pair cables connecting to the trunk/auxiliary field and/or the distribution field. See Table 5-1 for the cable label and colour code. The building and floor labels connect from the equipment room to a site/satellite location on another floor or in another building. The auxiliary circuits connect to the trunk/auxiliary field.

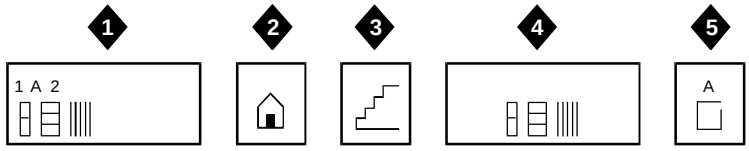


Figure 5-4. Equipment Room Cabling Labels

Table 5-1. Cable Labels

Number	Label Name	Range	Colour
1	Port Label	1A1-1A10, 1B1-1B20, 1C1-1C20, 1D1-1D20, 1E1-1E20	Purple
2	Building	Field Identified	Blue/Yellow
3	Floor	Field Identified	Blue/Yellow
4	Auxiliary Cable	Field Identified	Yellow
5	Site or Satellite	A-F and/or Field Identified	Blue/Yellow

Install Trunk Cables Among Network Interface, Sneak Current Protector, and Switch Cabinet

The 1-pair external trunks are installed by the local telephone company in the trunk auxiliary field. Tie trunks also appear in the trunk auxiliary field. Refer to callout 2 on Figure 5-1 on page 5-2.

Route the incoming trunk cables through the lightning protector and then to the Sneak Current Protector (507B). The 25-pair cable then goes through the trunk cross-connect field and then to the port.

Install Generic 3 Management Terminal

6

This chapter contains Generic 3 Management Terminal (G3-MT) requirements. Also detailed is:

- How to directly connect a terminal to the switch
- How to set up the terminal
- Alternative procedure to *remotely* connect a terminal to the switch.

The Generic 3 Management Terminal (G3-MT) shipped with the system is a 715 Management Terminal (715 MT). See the documentation packed with the terminal for information not contained in this chapter.

Generic 3 Management Terminal (G3-MT) Requirements

One Generic 3 Management Terminal (G3-MT) should be located in the same equipment room as the cabinet or in sight of the cabinet and must be within 50 feet (18 meters) of the cabinet. It is strongly recommended the terminal be connected directly to the switch cabinet with the shortest possible cable. If desired, another terminal can be connected remotely.

CAUTION:
When the terminal is being installed to support a DC-powered system or a system requiring electromagnetic shielding, a 116A Electronic Industries Association (EIA) ground isolator (comcode 106 005 242) must be installed at the back of the switch cabinet as shown in the schematic in Figure 6-2 and as described in this chapter.

Mains power for the terminal must be obtained from a standard voltage source in the range of 115 to 230 volts AC in the equipment room. The terminal is auto-sensing and automatically adjusts to receive the type of AC power at the site.

An optional printer may be used with the terminal to provide hard copies of administration data. A parallel printer should be connected to the printer or PAR port. A serial printer should be connected to the Data Communication Equipment (DCE) port.

Always connect the terminal cable to the Data Terminal Equipment (DTE) port on the back of the terminal. See Table 6-1.

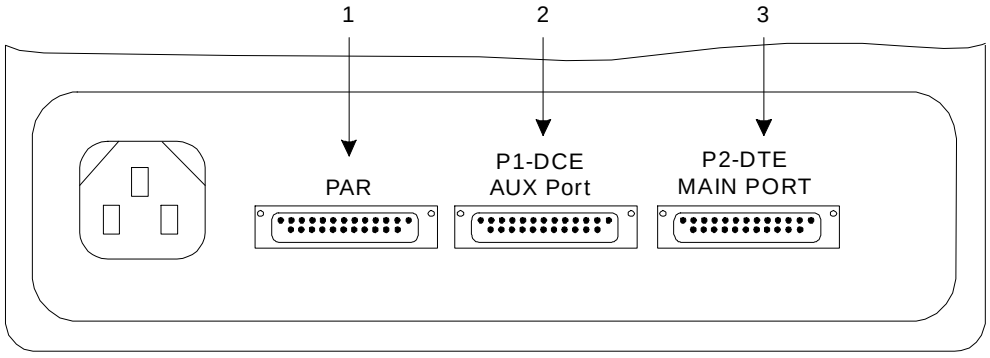


Figure Notes:

1. Parallel port to which optional parallel printer is connected.
2. Data Communication Equipment (DCE) port to which optional serial printer is connected.
3. Data Terminal Equipment (DTE) port to which cable from switch is always connected. No matter what the position of the Data Terminal Equipment (DTE) port, always connect the cable from the switch to the port.

Figure 6-1. Partial Rear View of one version of the 715 Management Terminal (715 MT)

Connect Generic 3 Management Terminal (G3-MT)

1. Unpack the terminal and inspect for damage.

2. *If you have a DC-powered switch control cabinet or if you need electromagnetic shielding*, locate the 116A Electronic Industries Association (EIA) Ground Isolator (comcode 106 005 242) and install it in the **TERMINAL** connector on the rear of the switch control cabinet (for standard reliability, unduplicated systems); or in the **DUPLICATION OPTION TERMINAL** connector (for high and critical reliability, duplicated systems), and skip to Step 4 below. See Figure 6-3 for the position of these two connectors at the rear of the switch cabinet.

   If you do not have a DC-powered switch control cabinet, go directly to Step 3 below.

3. Use an M25B Electronic Industries Association (EIA) shielded cord (cable code H600-426) or an equivalent to connect between the terminal **DTE** connector and the **TERMINAL** connector (unduplicated systems) or the **DUPLICATION OPTION TERMINAL** (duplicated systems) on the rear of the switch control carrier and skip to Step 5 below.

4. *For DC-powered cabinets or for electromagnetic shielding*, use an M25B (Electronic Industries Association) shielded cord (cable code H600-426) or an equivalent to connect between the terminal **DTE** port and a 116A Electronic Industries Association (EIA) ground isolator (comcode 106 005 242) mounted in the **TERMINAL** connector (unduplicated systems) or the **DUPLICATION OPTION TERMINAL** connector (duplicated systems) position on the rear of the control carrier.

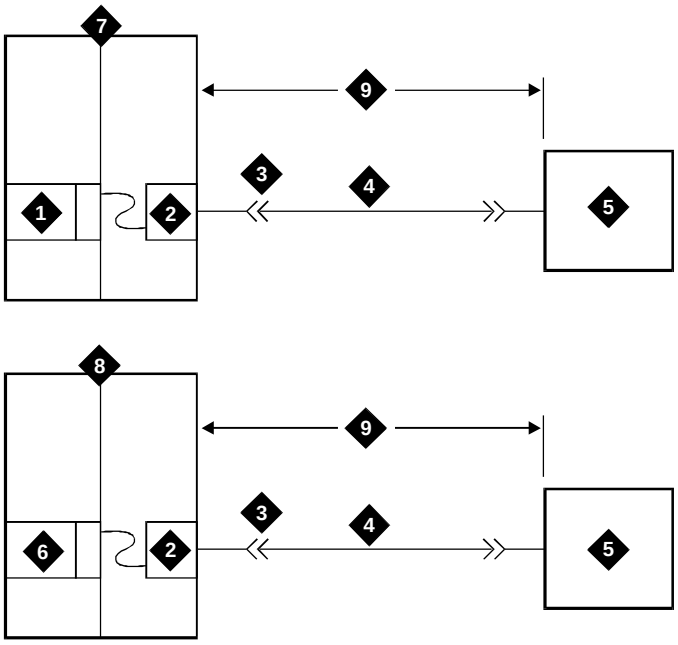


Figure Notes:

1. TN786B Circuit Pack (Processor Board)
2. Rear Connection Panel "A" Carrier Position, labeled "TERMINAL" for unduplicated systems or "DUPLICATION OPTION TERMINAL" for duplicated systems.
3. In a DC-powered system and for systems needing electromagnetic shielding, a 116 Electronic Industries Association (EIA) Ground Isolator (comcode 106 005 242) is required
4. M25B Cable
5. Generic 3 Management Terminal (G3-MT)
6. TN775 Circuit Pack (Maintenance Board)
7. Processor Port Network (PPN)
8. Expansion Port Network (EPN)
9. Distance between units not to exceed 50 feet (18 meters)

Figure 6-2. Direct Connections to Generic 3-Management Terminal (G3-MT) and Electronic Industries Association (EIA) Ground Isolator

5. Connect the keyboard cord to the **KBD** jack on the terminal.
6. If ordered, connect the optional printer to the appropriate place at the back of the terminal. Connect a parallel printer to the printer or PAR port or a serial printer to the Data Communication Equipment (DCE) port.

7. Connect AC power cord of the terminal to the selected AC receptacle in the equipment room and turn on the terminal.

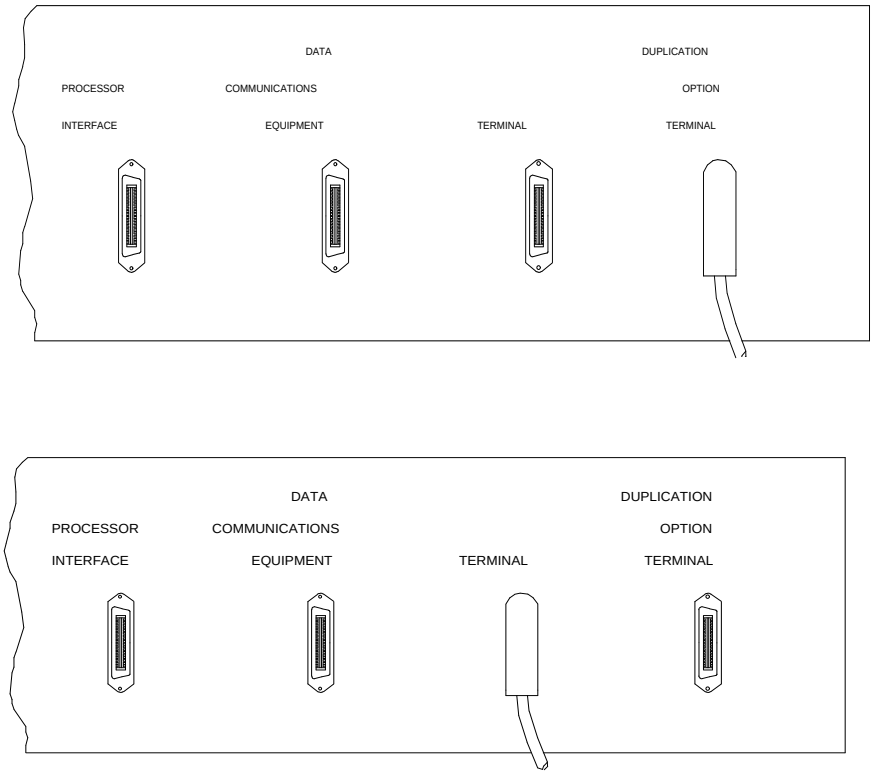


Figure 6-3. Duplication Optional Terminal and Terminal Connectors on the Control Cabinets

Figure 6-3 shows the two possible positions on the back of the switch control cabinet for connecting the M25B cord between the switch and the terminal; or, *for DC powered systems and for electromagnetic shielding,* for installing the 116A Electronic Industries Association (EIA) Ground Isolator: the **DUPLICATION OPTION TERMINAL** connector for high and critical reliability (duplicated) systems in the top illustration and the **TERMINAL** connector for standard reliability (unduplicated) systems in the bottom illustration.

Set Up G3 Management Terminal (G3-MT)

Use the following procedures to set up the 715 Management Terminal options:

NOTE:
These procedures may change as the model of 715 Management Terminal (G3-MT) shipped with DEFINITY System Generic 3 changes. Consult the documentation shipped with the terminal for set up instructions.

1. Hold down the CTRL key while pressing F1 and verify the terminal setup screen is shown.

   Function keys (F1, etc.) are located at the top of the keyboard of the terminal. Lighted rectangles (windows) appear at the bottom of the screen and correspond to the function keys across the top of the keyboard.

2. Press F7 to make sure the default values are set.
3. Using the up/down arrow keys on the keypad, position the cursor at the `Keyboard Options (per window)` field and press RETURN.
4. Using the up/down arrow keys on the keypad, position the cursor at the `Enter Key` field. Then under `Primary/Window 1` press the ESC key, then hold down the SHIFT key and type S and then B. This will enter **escapeSB** in this field.
5. Press **F5-SAVE** to save the changes then press **F1 SETUP MENU** and exit the Setup Menu screen.

Table 6-1. Required Settings for 715 Management Terminal to Communicate with Switch

Terminal Option	Value
Font Size	Large (default)
Autowrap	Off (default)
Baud Rate	9600 (default)
Stop Bit	1 (default)
Data Bits	7 (default)
Parity	Space (default)
Check Parity	Yes (default)
Transmission Flow Control	X on, X off (default)
Enter Key	escapeSB (must be set)

Remotely Connect Generic 3 Management Terminal (G3-MT)

A secondary (and optional) terminal used for purposes other than maintenance can be installed at some distance from the switch. Typical remote connections are shown in the schematic in Figure 6-4 below.

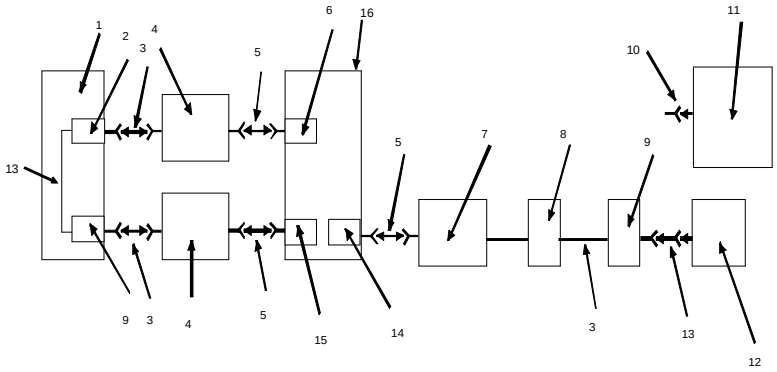


Figure Notes:

1. External modem pool
2. 7400A data module
3. Line Cord
4. Cross Connect Field
5. B25A Cable
6. TN754 Circuit Pack
7. Public Network
8. 103A or Modular Wall Jack
9. Modem
10. When a DB9 is used on the back of a personal computer (PC), use ED3-1-70, G115 to convert DB9 to DB25.
11. Call Detail Recording Utility, CAS+, Property Management System, Basic Call Management System, Remote Management Terminal, System Journal Printers, Cost Allocator
12. Remote Management Terminal or Monitor 1
13. M25A Cable
14. This circuit pack can be any of the following: TN747, TN753, TN760, TN767, TN464, TN2147, TN465, etc.
15. This circuit pack can be any analog circuit pack: TN769, TN742, TN746, TN2183 etc.
16. DEFINITY System Generic 3 switch

Figure 6-4. Typical Remote Connections from Generic 3 Across Public Network to Terminal and Other Remote Devices

Activate the System

7

This chapter contains procedures for activating the system and bringing the switch up to a non-alarm (no red lights) state. This chapter details:

- Powering up the switch
- Installing translation flash-memory card
- Powering up AC-powered switch
- Powering up DC-powered switch
- Verifying messages on management terminal
- Logging in to the system
- Setting required country options
- Changing craft password
- Setting date and time
- Setting system maintenance parameters
- Saving translations

After the system is activated, the telephones and other equipment need to be installed (see Chapter 9, "Install and Wire Telephones and Other Equipment"). The system is administered by adding the customer data to match the wiring, telephones, and other equipment (see the reference to the book at the end of Chapter 9, "Install and Wire Telephones and Other Equipment"). The telephones and other equipment are tested (see Chapter 10, "Test Telephones and Other Equipment").

CAUTION:
While performing these procedures, you may need to reseat circuit packs. To prevent damage from static electricity, always wear an Electromagnetic

Compatibility (EMC) wrist strap (comcode 900 698 226) when handling circuit packs or other switch components.

Power Up Switch

To power up the switch, do the following:

Install Translation Flash-Memory Card

1. Verify the write switch on the white Translation Flash-Memory Card (Translation Card) shipped with the system is positioned so the card can be written. The write switch is shown in the correct position in Figure 7-1.
2. Install the Translation Card in the TN777B network control circuit pack. Insert the card into the slot in the direction indicated by the arrow on the card's label as shown in Figure 7-1.

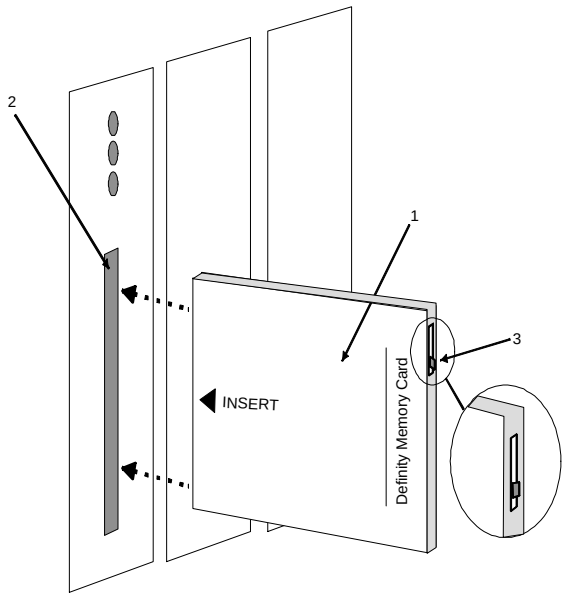


Figure Notes:

1. Insert card in direction of arrow into the slot.
2. Slot on TN777B circuit pack
3. Write switch positioned correctly

Figure 7-1. Write Switch on DEFINITY Memory Card

Power up AC-Powered Switch

1. Ensure the associated circuit breakers on the AC power panel are **ON**.

   NOTE:
   If the system is configured for High or Critical Reliability, power-up the Expansion Port Network (EPN) cabinet first, then the Processor Port Network (PPN) cabinet. *Always* power up the Control Cabinet *last* in any multi-cabinet configuration.

2. At the rear of each cabinet, set the circuit breaker to **ON**. Go to ''Verify Messages.''

   NOTE:
   This action starts the system initialization and test. All red lights on the circuit packs go on and then off.

Power up DC-Powered Switch

1. At the DC Battery Cabinet, set circuit breaker to **ON**.

   NOTE:
   If the system is configured for High or Critical Reliability, power-up the Expansion Port Network (EPN) cabinet first, then the Processor Port Network (PPN) cabinet. *Always* power up the Control Cabinet *last* in any multi-cabinet configuration.

2. At DC Power Cabinet, set the circuit breaker(s) on the associated rectifiers **ON**.
3. At the rear of each Power Distribution Unit, set the circuit breaker to **ON**.

   NOTE:
   This action starts the system initialization and test. All red lights on the circuit packs go on and then off. Some red lights may come back on in a few seconds or a few minutes and will be turned off by other procedures in this chapter.

Verify Messages on Terminal

1. After several minutes, verify all tests pass.

   NOTE:
   If any of the terminal messages indicate a test has failed or the message ''`spe down mode`'' is displayed, refer to *DEFINITY Communications System Generic 1 and Generic 3i/s/vs Maintenance*, 555-204-105, to clear the trouble, or call your AT&T representative.

```
TN786 FLMM Release 1.8.0
INVOKING EMERGENCY TRANSFER
 ROM CHECKSUM TEST ( = 9CAE )     PASSED
 SOFT INT TEST                    PASSED
 NMI TEST                         PASSED
 READ_WRITE MEMORY                PASSED
 MEMORY BOARD 1 PARITY BIT TEST   PASSED
 MEMORY FUNCTIONAL TEST           PASSED
 FLASH TEXT CHECKSUM ( = EF3E )   PASSED
RESET 4 (REBOOT) PERFORMED
```

Screen 7-1. Typical Turn-On Messages for Systems with FLASH Memory

2. About 2 minutes after REBOOT PERFORMED is displayed, verify the terminal screen displays:

   Login:

   NOTE:
   Most red lights will come on and go off again at this point. Some red lights will stay on until the country options are administered in the next pages.

Introduction to Terminal Screens and Commands

Screens

The system is administered using screens displayed on the terminal. The screens are used to add, change, display, list data, and to remove system and telephone features. To access a screen, enter a valid system command in response to the command: prompt.

Commands

System commands are standard words and phrases instructing the switch to perform a specific function. The commands are arranged in hierarchy of keywords; that is, enter one command to take you to a different level. The commands contain three parts: ACTION, OBJECT, and QUALIFIER.

- ACTION is the first part of the command. When `command:` appears on the screen. The ACTION specifies the operation you want to do. Examples of permissible entries include **add, duplicate, change, remove, display, list,** and **save.**
- OBJECT is the second part of the command and specifies the particular object you want to administer. Typical entries are **hunt-group, coverage path,** and **station.**
- QUALIFIER is the last part of the command. It is one or more words or digits used to further identify or complete the OBJECT. For example, *hunt group 15* or *station 3600*, where *15* and *3600* are qualifiers.

An example of the command line required to add a station with extension number *1234* is **add station 1234**. In this example, **add** is the ACTION, **station** is the OBJECT, and **1234** is the QUALIFIER. In the command line, spaces are required between the ACTION, OBJECT, and QUALIFIER.

To save time, enter enough letters for each part of the command to make it unique. For example, if you want to enter the command **change system-parameters country-options**, typing **cha sys coun** is acceptable. However, typing the entire command will always work.

NOTE:
The craft login may not be allowed to perform some of the steps needed to initialize the switch. If access is denied to some of these procedures, contact your AT&T representative for assistance.

Getting Help

Use the HELP key for a list of options and the CANCEL key to back out of any command.

Log in to the System

To log on the system, do the following:

1. Verify the screen displays:

   `Login:`

2. Type **craft** and press ENTER.

3. Verify the screen displays:

   `password`:

4. Type **crftpw** and press ENTER. For security reasons, the password is not displayed as it is typed. The system verifies a valid login and password name were entered. If an invalid login or password name was entered, the screen displays:

   `login incorrect:`

   In this case, repeat the procedure using the correct login and matching password.

   If the system recognizes the login and password name, the screen will display the software version.

5. Verify the screen display is similar to:

   `Terminal Type (513, 715, 4410, 4425, VT220): [513]`

6. Type the number of your management terminal and press ENTER.

7. Verify the screen displays:

   `command`:

Set Required Country Options

Certain country options need to be set to turn red failure indication lights off on the circuit packs.

1. Verify the screen displays:

   `command:`

2. Type **change system-parameters country options** and press ENTER.

   The following screen is displayed. The cursor is set on `Companding Mode` line.

```
change system-parameters country-options              Page 1 of 21
SYSTEM PARAMETERS COUNTRY-OPTIONS

         Companding Mode: A-Law           Base Tone Generator Set: 1
     440Hz PBX-dial Tone? n                   Secondary-dial Tone? n
       Digital Loss Plan: 1
  Analog Ringing Cadence: 1    Set Layer 1 timer T1 to 30 seconds? n
Analog Line Transmission: 1


TONE DETECTION PARAMETERS
Tone Detection Mode: 5            Dial Tone Validation Timer
(msec):                       Interdigit Pause:
```

3. The default is Mu-Law. If your country uses A-Law companding, type A-Law. If it uses Mu-Law and Mu-Law is displayed, go to Step 4 below.

   Companding mode can be A-law or Mu-law. The switch should have been shipped with the correct Tone Detector circuit packs for your country. If you have TN420C you must use A-law. If you have TN748 or TN756 you must use Mu-law. If you have TN2182, then your companding mode is dictated by your local practices. Administering the correct companding mode will turn off any red lights on these circuit packs or on the tone-clock boards (for example TN780).

4. Press ENTER when this information is correct.

   Other items eventually need to be entered on this screen, but this is all that must be done to turn the red alarm indication lights off. Refer to Table 7-1 for a list of the country codes.

Table 7-1. Country Codes

Country	Country Code	Country	Country Code
global	0	Spain	11
USA	1	France	12
Australia	2	Germany	13
Japan	3	Czechoslovakia	14
Italy	4	Russia	15
The Netherlands	5	Argentina	16
Singapore	6	Greece	17
Mexico	7	China	18
Belgium	8	Hong Kong	19
Saudi Arabia	9	Thailand	20
United Kingdom	10	Macedonia	21

5. If all the red lights do not go off, reseat (unplug and reinsert) any purple-labeled circuit packs displaying red lights.

CAUTION:
*To avoid a disk crash, **never** reseat the DEFINITY AUDIX System without first shutting it down. Shut down the DEFINITY AUDIX System (and allow the disk to completely spin down) before unplugging the DEFINITY AUDIX assembly. See Appendix C, "DEFINITY AUDIX System Power Procedures" for the procedure for manually shutting down and powering up DEFINITY AUDIX System.*

CAUTION:
Before attempting to reseat white-labeled control circuit packs or the purple-labeled tone detector/generator circuit pack (in the single-carrier cabinet only), first power down the switch.

6. If the red lights still do not go off, read the note below and then refer to *DEFINITY Communications System Generic 1 and Generic 3i/s/vs Maintenance*, 555-204-105, to resolve the trouble, if necessary.

NOTE:
Ignore the red alarm indication light on the TN767 or TN464 DS1 circuit pack until after the Digital Service Level 1 (DS1) circuit pack is administered.

Alarms will appear in the Alarm Log when power is applied to the system before all equipment connecting to port circuit packs is installed. Normally, some alarms will be logged when power is applied to the system, but should be resolved quickly. If no equipment is connected to the port circuit packs, alarms associated with these ports can take up to four hours to log, but will clear automatically after all equipment is installed and operating correctly.

Change Craft Password

The password for the craft login *must be changed* by the installing technician to prevent unauthorized administration changes.

CAUTION:
After the ''craft'' password is changed, the new password must be safeguarded so no unauthorized administration changes can be made. This password MUST NOT BE REVEALED to the customer or to any unauthorized person.

Passwords are changed using the Change Password Screen (see Screen 7-2). To change the ''craft'' password, perform the following.

1. Verify the screen displays:

   `command:`

2. `Type` **`change password craft`**`. Press` ENTER.

```
change password craft                                        Page 1 of 1
                            PASSWORD ADMINISTRATION

   Password For Login Making Change:


   LOGIN BEING CHANGED
                        Login Name: craft
   LOGIN'S PASSWORD INFORMATION
                  Login's Password:
                  Reenter Login's Password:
```

Screen 7-2. Typical Change Password Screen

3. Verify the screen displays Change Password Screen.

   Cursor is positioned on "`Password for Login Making Change:`"

4. Type the password assigned to the craft login (assigned as *crftpw* when system is shipped) and press ENTER.

   Cursor is positioned on "`Login's Password:`".

5. Enter selected new password (see note below).

   NOTE:
   Valid passwords consist of a combination of from four to eleven alpha or numeric characters. At least one letter and one number must be used in each password.

6. Press ENTER.

   Cursor is positioned on "`Reenter Login's Password:`".

7. Type new password again.

8. Press ENTER.

9. Verify the screen displays:

   `command successfully completed`

   `command:`

Set Date and Time

The system date and time are set using the Set Date and Time Screen (see Screen 7-3). This screen is displayed on the terminal screen and is changed with the terminal keyboard. To set the system time and date, perform the following:

1. Verify the screen displays:

   `command:`

2. Type **set time**. Then press ENTER.
3. Verify the screen displays Set Date and Time Screen (shown below).

   Cursor is positioned on `Day of the Week:` field.

```
set time                                          Page 1 of 1

                  DATE AND TIME

DATE

  Day of the Week: _________      Month: ___________
  Day of the Month: __              Year: ____

TIME

              Hour: __            Second: xx
            Minute: __
```

Screen 7-3. Typical Date and Time Screen

4. Type *day of week* in English (Sunday through Saturday) and press TAB to move to next field. See Table 7-2 for English day of the week names.

Cursor is positioned on `Month:` field.

Table 7-2. English Day of the Week Names

Day Number	Day Name
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

5. Type *current month* in English (January through December) and press TAB to move to next field. See Table 7-3 for English month names.

   Cursor is positioned on `Year:` field.

Table 7-3. English Month Names

Month Number	English Month Name
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

Cursor is positioned on `Day of the Month:` field.

6. Type *day of month* (1 through 31) and press TAB to move to next field.

   Cursor is positioned on `Year:` field.

7. Type *current year* (for example, 1995) and press TAB to move to next field.

   Cursor is positioned on `Hour:` field.

8. Type *current hour* for 24-hour clock (see Table 7-4) and press TAB to move to the next field.

   Cursor is positioned on `Minute:` field.

9. Type *current minute* (0 through 59).

   Seconds cannot be set.

10. Press ENTER when the information is correct..

Table 7-4. Conversion to 24-Hour Clock

Standard Time		Standard Time	
12-Hour	**24-Hour**	**12-Hour**	**24-Hour**
12:00 midnight	0000	12:00 noon	1200
1:00 am	0100	1:00 pm	1300
2:00 am	0200	2:00 pm	1400
3:00 am	0300	3:00 pm	1500
4:00 am	0400	4:00 pm	1600
5:00 am	0500	5:00 pm	1700
6:00 am	0600	6:00 pm	1800
7:00 am	0700	7:00 pm	1900
8:00 am	0800	8:00 pm	2000
9:00 am	0900	9:00 pm	2100
10:00 am	1000	10:00 pm	2200
11:00 am	1100	11:00 pm	2300

1. Verify the screen displays:

   "`command successfully completed`"

   "`command:`"

2. Type **display time**, and press ENTER to verify date/time data.

NOTE:
The Set Date and Time Screen is displayed showing all data entered in the previous steps followed by:

`command:`

Set System Maintenance Parameters

NOTE:
If you do not have a TN778 circuit pack, skip this procedure and proceed to "Save Translations" on page 7-15.

1. Verify the terminal screen displays:

   `command:`

2. Type **change system-parameters maintenance** and press ENTER.

NOTE:
Verify the screen displays Maintenance-Related System Parameters Screen (see Screen 7-4). The screen displays the default values and the cursor is positioned on `Product Identification:` line.

```
display system-parameters maintenance              Page 1 of 2
            MAINTENANCE-RELATED SYSTEM PARAMETERS
 OPERATIONS SUPPORT PARAMETERS
         Product Identification: __________
           OSS Telephone Number: __________
    Alarm Origination Activated? n
     Cleared Alarm Notification? n
           Restart Notification? n
        Test Remote Access Port? n
     CPE Alarm Activation Level: none
           Packet Bus Activated? n
  Customer Access to INADS port? n
 SCHEDULED MAINTENANCE
                    Start Time: 01 : 00
             Daily Maintenance: dail y
              Save Translation: dail y
  Control Channel Interchange: no
    System Clocks Interchange: no
               SPE Interchange: no
         EXP-LINK Interchange: no
```

Screen 7-4. Typical Display System-Parameters Maintenance Screen (Page 1)

3. Move the cursor by pressing TAB to move down the screen from field to field and enter **y** in the Packet Bus Activated? field to indicate you have a TN778 circuit pack.

   This is the only field needing change on this screen to turn the red lights off.

4. Press ENTER when the information is correct.
5. Verify the screen displays:

   ```
   command successfully completed

   command:
   ```

Save Translations

The **save translation** command copies the current system translations onto the translation card. For standard-reliability systems, one translation card plus one backup are required. For high or critical-reliability systems, two translation cards plus two backups are required.

CAUTION:
Do not attempt to save translations on the orange-labeled, 10 MB memory card. Use the white translation card!

The following procedure can be used to save system translations on the original card(s) and can also can be used to make a backup card or cards:

1. Verify the screen displays:

   ```
   command:
   ```

2. Type **save translation** and press ENTER.
3. After several minutes, the screen displays something like this:

```
save translation                                          SPE A
                    SAVE TRANSLATION
Processor       Command Completion Status       Error Code
SPE_A                Success                         0

SPE_B                Success                         0


Command successfully completed
command:
```

Screen 7-5. Typical Save Translation Screen

4. Verify a **0** is displayed in the Error Code column for each switch processing element in the system. A **0** indicates the save translation was successfully completed for the translation card. If a **0** did not appear, the save translation did not complete. Record the ''error code number'' and the ''error message'' and notify your AT&T representative.
5. Remove the original translation card(s) from the TN777B(s) and replace it or them with backup card(s).
6. Repeat Steps 1 through 4 for the backup card(s).
7. Remove the backup translation card(s) from the TN777B and replace it or them with the original translation card(s).
8. Label the backup card(s) with the date and time of the backup. A special notation should be put on the cards to clearly distinguish them from other such devices.
9. Store the backup in a secure place.

Logoff

Log off the system to prevent unauthorized changes of the data. To log off:

1. Type **logoff** and press ENTER.
2. Verify the screen displays:

   ```
   Login:
   ```

   NOTE:
   The login prompt indicates you have logged off the system and it is ready for another person to log on.

Test the System

8

The following tests provide verification of the Time Division Multiplexing (TDM) cables and terminators, and fibre-optic inter-cabinet cables (ICC). If a FAIL Result code is seen or other problems are indicated, check these cables. If problems persist, refer to the U.S. English book, *DEFINITY Communications System Generic 1 and Generic 3i Maintenance*, 555-104-205.

The status of the system should be reviewed first, followed by testing the tone-clock, Time Division Multiplexing (TDM) bus, and duplication link in the Processor Port Network (PPN). Then test expansion interfaces, tone-clock(s), Time Division Multiplexing (TDM) buses, and duplication in the Expansion Port Networks (EPNs).

NOTE:
Circuit pack positions are usually given by cabinet, carrier (within cabinet), and slot (within carrier). They may also be given by port (within slot). The term "cabinet" refers to a stack of single carrier cabinets making up one port network. A port network is defined as a group of cabinets connected together with one Time Division Multiplexing (TDM) bus.

Check the System Status for Each Cabinet

The system status may suggest problem areas. Specific tests later provide more specific diagnostic information.

1. Verify the terminal screen displays:

   `command:`

2. Type **status system all-cabinets** and press ENTER.

3. Verify the screen displays system status screens similar to the example shown below:

```
status system all-cabinets                                  Page   1 of   3   SPE A
                          SYSTEM STATUS CABINET 1

                          SELECT  SPE ALARMS    TONE/  SERVICE SYSTEM  SYSTEM
SPE  MODE                 SWITCH  MAJOR MINOR   CLOCK  STATE   CLOCK   TONE
1A   active                auto     1    0       1A     in     standby standby
1B   maint/init            auto     1    0       1B     in     active  active

    SERVICE   CONTROL  DEDICATED         SERVICE  BUS ALARMS    BUS   OPEN BUS
TDM  STATE    CHANNEL    TONES      PKT   STATE  MAJOR MINOR   FAULTS  LEADS
1A    in         y          n       1
1B    in         n          y

EMERGENCY     SELECT                    SERVICE              CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE       TYPE
1A            auto-on     01A01-02A01    in       standby    MCC
1B            auto-on     01B01-02B02    in       active
```

Screen 8-1. Example System Status Screen for Cabinet 1

NOTE:
In the first section of the report, all Tone-Clocks should report a SERVICE STATE of in.

NOTE:
In the second section of the report, all Time Division Multiplexing (TDM) buses should report a SERVICE STATE of in.

NOTE:
In the third section of the report, all expansion links should report a SERVICE STATE of in, and, under EXP-LINK, the cabinet/carrier/slot numbers for the fiber optic cables are listed. For example, 01A01 in Screen 8-1 refers to cabinet 01, carrier A, and slot 01.

NOTE:
Refer to the U.S. English book, *DEFINITY Communications System Generic 1 and Generic 3i Maintenance*, 555-104-205, for a detailed interpretation of this screen.

```
status system all-cabinets                                  Page   2 of   3   SPE A
                           SYSTEM STATUS CABINET 2

                           SELECT  SPE ALARMS    TONE/  SERVICE SYSTEM  SYSTEM
SPE  MODE                  SWITCH  MAJOR MINOR   CLOCK  STATE   CLOCK   TONE
1A   active                 auto     1    0       2A     in     active  active
1B   maint/init             auto     1    0       2B     in     standby standby

    SERVICE   CONTROL  DEDICATED         SERVICE  BUS ALARMS    BUS   OPEN BUS
TDM  STATE    CHANNEL    TONES      PKT   STATE  MAJOR MINOR   FAULTS  LEADS
2A    in         y          n       2
2B    in         n          y

EMERGENCY     SELECT                   SERVICE             CABINET
TRANSFER      SWITCH      EXP-LINK     STATE     MODE      TYPE
2A            auto-on     01A01-02A01   in       standby   MCC
                          01B01-02B02   in       active
```

Screen 8-2. Example System Status Screen for Cabinet 2

NOTE:
See the notes associated with Screen 8-1 on the previous page.

```
status system all-cabinets                              Page   3 of   3   SPE A
SYSTEM STATUS CABINET 3

                           SELECT  SPE ALARMS    TONE/  SERVICE SYSTEM  SYSTEM
SPE  MODE                  SWITCH  MAJOR MINOR   CLOCK  STATE   CLOCK   TONE
1A   active                 auto     1    0       3A
1B   maint/init             auto     1    0       3B

    SERVICE   CONTROL  DEDICATED         SERVICE  BUS ALARMS    BUS   OPEN BUS
TDM  STATE    CHANNEL    TONES      PKT   STATE  MAJOR MINOR   FAULTS  LEADS
3A
3B

EMERGENCY     SELECT                    SERVICE              CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE       TYPE
3A                             -
```

Screen 8-3. Example System Status Screen for Cabinet 3

NOTE:
See the notes associated with Screen 8-1 on the previous page.

NOTE:
In the example of Screen 8-3, cabinet 3 (the second Expansion Port Network (EPN)) is not connected to the system.

Check Circuit Pack Configuration

The list configuration report provides a list of circuit packs plugged into the system and recognized by the software.

1. Verify the screen displays:

   `command:`

2. Type **list configuration all** and press ENTER.

3. Verify the screen displays list configuration screens similar to the example shown below. Check the report on the screen with the equipment installed and make sure the software is communicating with each circuit pack (except power supply circuit packs). Wait until after the diagnostic tests later in this chapter before attempting to correct any problems.

4. Note any displays for boards that say in the VINTAGE column: BOARD NOT PRESENT or CONFLICT.

```
list configuration all                                        Page   1   SPE B

                              SYSTEM CONFIGURATION

Board                                                       Assigned Ports
Number   Board Type              Code     Vintage    u=unassigned t=tti

01A01    EXPANSION INTRFC         TN570B  000001
01A03    DID TRUNK                TN459   000004     u  u  u  u  u  u  u  u
01A04    DID TRUNK                TN436   000004     u  u  u  u  u  u  u  u
01A07    TIE TRUNK                TN439   000004     u  u  u  u
01A09    ANNOUNCEMENT             TN750   000007     01 02 03 04 05 06 07 08
                                                     09 10 11 12 13 14 15 16
01B01    EXPANSION INTRFC         TN570   000009
01B02    TONE DETECTOR            TN748D  000002     01 02 03    05 06 07
01B03    DATA LINE                TN726   000012     u  u  u  u  u  u  u  u
01B08    BRI LINE                 TN556B  000003     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
01C01    ANALOG LINE              TN746B  000006     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u

               press CANCEL to quit --  press NEXT PAGE to continue
```

Screen 8-4. Example System Configuration Screen — Page 1

NOTE:
Under Assigned Ports, a “u” indicates unassigned ports and a number indicates the port has been translated.

```
                                                              Page   2

                            SYSTEM CONFIGURATION

Board                                                  Assigned Ports
Number   Board Type              Code     Vintage    u=unassigned t=tti

01C02    DIGITAL LINE             TN754B  000001     u  u  u  u  u  u  u  u
01C04    CO TRUNK                 TN747B  000012     u  u  u  u  u  u  u  u
01C05    E&M TIE TRUNK            TN437B  000001     u  u  u  u
01C06    DS1 INTERFACE            TN464D  000002     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
01C08    DS1 INTERFACE            TN464D  000002     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
01C11    E&M TIE TRUNK            TN458   000005     u  u  u  u
01C12    CO TRUNK                 TN438B  000001     u  u  u  u  u  u  u  u
01C13    CO TRUNK                 TN447   000003     u  u  u  u  u  u  u  u

              press CANCEL to quit --  press NEXT PAGE to continue
```

Screen 8-5. Example System Configuration Screen — Page 2

```
list configuration all                                          Page   3

                            SYSTEM CONFIGURATION

Board                                                    Assigned Ports
Number   Board Type              Code     Vintage    u=unassigned t=tti

01C15    DS1 INTERFACE            TN767   000017     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
01C17    CALL CLASSIFIER          TN744   000007     01 02 03 04 05 06 07 08
01C19    MAINTENANCE/TEST         TN771D  000006     u  02 03 u
01C20    AUXILIARY TRUNK          TN763D  000005     u  u  u  u
02A01    EXPANSION INTRFC         TN570B  000001
02A02    TONE DETECTOR            TN748C  000005     01 02 03    05 06 07
02A03    DIGITAL LINE             TN754   000010     u  u  u  u  u  u  u  u
02A04    ANALOG LINE              TN467   000003     u  u  u  u  u  u  u  u
02A05    TIE TRUNK                TN439   000004     u  u  u  u
02A10    BRI LINE                 TN556   000009     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u

              press CANCEL to quit --  press NEXT PAGE to continue
```

Screen 8-6. Example System Configuration Screen — Page 3

```
configuration all                                                    Page   4

                              SYSTEM CONFIGURATION

Board                                                    Assigned Ports
Number   Board Type              Code     Vintage    u=unassigned t=tti

02B01    TONE/CLOCK               TN780   000005
02B02    EXPANSION INTRFC         TN570   000009
02B04    ANALOG LINE             TN2135   000003     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
02B06    DIGITAL LINE            TN2181   000001     u  u  u  u  u  u  u  u
                                                     u  u  u  u  u  u  u  u
01A      DUPLICATION INTRFC       TN772   000012
01A      PROCESSOR                TN786B  000004
01A      MEMORY EXPANSION          CPP1   000005
01A      NETWORK CONTROL          TN777B  000018     u  u  u  u
01A      TONE/CLOCK              TN2182   000002     01 02 03 04 05 06 07 08
01B      DUPLICATION INTRFC       TN772   000013
01B      PROCESSOR                TN786B  000004
01B      MEMORY EXPANSION          CPP1   000005

               press CANCEL to quit --  press NEXT PAGE to continue
```

Screen 8-7. Example System Configuration Screen — Page 4

```
list configuration all                                                SPE B

                              SYSTEM CONFIGURATION

Board                                                    Assigned Ports
Number   Board Type              Code     Vintage    u=unassigned t=tti

01B      NETWORK CONTROL          TN777B  000018     u  u  u  u
01B      TONE/CLOCK               TN2182  000002     01 02 03 04 05 06 07 08
02A      MAINTENANCE              TN775B  000001
02A      TONE/CLOCK               TN780   000005

Command successfully completed
```

Screen 8-8. Example System Configuration Screen — Page 5

Test Time Division Multiplexor (TDM) Bus in Processor Port Network (PPN)

1. Verify the screen displays:

   `command:`

2. Type **test tdm port-network 1** and press ENTER.
3. Verify the screen displays the results of this test as shown in the example on the following page.

```
test tdm port-network 1                                              SPE B

                                TEST RESULTS

  Port      Maintenance Name  Alt. Name Test No. Result            Error Code

  PN 01A    TDM-BUS                     294      PASS
  PN 01A    TDM-BUS                     296      PASS
  PN 01A    TDM-BUS                     297      ABORT             1005
  PN 01B    TDM-BUS                     294      PASS
  PN 01B    TDM-BUS                     296      ABORT             1005
  PN 01B    TDM-BUS                     297      PASS

Command successfully completed

Command:
```

Screen 8-9. Example Test Results for Time Division Multiplexing (TDM) Port Network 1

4. If the result is FAIL for any test, check the connectors of the Time Division Multiplexing (TDM) bus cables in Processor Port Network (PPN) 1.

Test Tone-Clock Boards

Testing the Tone-Clock board also detects problems with the Time Division Multiplexing (TDM) bus cables.

1. Verify the screen displays:

   command:

2. Type **test tone-clock 1a** and press ENTER.
3. Verify the screen displays test results similar to the example shown on the following page:

```
test tone-clock 1a                                                    SPE A

                                TEST RESULTS

  Port      Maintenance Name  Alt. Name Test No. Result            Error Code

  01A       TONE-BD                     46       PASS
  01A       TONE-BD                     52       PASS
  01AXX01   ETR-PT                      42       PASS
  01AXX01   ETR-PT                      43       PASS
  01AXX02   ETR-PT                      42       PASS
  01AXX02   ETR-PT                      43       PASS
  01AXX03   ETR-PT                      42       PASS
  01AXX03   ETR-PT                      43       PASS
  01AXX04   ETR-PT                      42       PASS
  01AXX04   ETR-PT                      43       PASS
  01AXX05   ETR-PT                      42       PASS
  01AXX05   ETR-PT                      43       PASS
  01AXX06   ETR-PT                      42       PASS
  01AXX06   ETR-PT                      43       PASS

Command successfully completed

Command:
```

Screen 8-10. Example Test Results for Tone-Clock 1A

Test Switch Processing Element (SPE) Duplication Memory Shadowing Link

For High and Critical Reliability systems, test the Switch Processing Element (SPE) duplication; memory shadowing link.

1. Verify the screen displays:

   `command:`

2. Type **test shadow-link** and press ENTER.

3. Verify the screen displays test results similar to the example shown on the following page:

```
                                TEST RESULTS

  Port      Maintenance Name  Alt. Name Test No. Result           Error Code

            SHDW-LNK                    318      PASS

Command successfully completed
```

Screen 8-11. Example Test Results for Switch Processing Element Duplication Memory Shadowing Link

4. If `result` is FAIL for any test, check the Inter-Cabinet Cables (ICC) in the Processor Port Network (PPN).

Test Duplicated Switch Processing Element (SPE) Interchange

For High and Critical Reliability systems, check the Switch Processing Element (SPE) interchange.

1. Verify the screen displays:

   `command:`

2. Type **status system all-cabinets** and press ENTER.
3. Verify the screen displays test results similar to the example shown on the following page:

```
status system all-cabinets                                              SPE A
                          SYSTEM STATUS CABINET 1

                          SELECT  SPE ALARMS    TONE/  SERVICE SYSTEM  SYSTEM
SPE  MODE                 SWITCH  MAJOR MINOR   CLOCK  STATE   CLOCK   TONE
1A   active                auto     1    0       1A     in     standby standby
1B   maint/init            auto     1    0       1B     in     active  active

    SERVICE   CONTROL  DEDICATED         SERVICE  BUS ALARMS    BUS   OPEN BUS
TDM  STATE    CHANNEL    TONES      PKT   STATE  MAJOR MINOR   FAULTS  LEADS
1A    in         y          n       1
1B    in         n          y

EMERGENCY     SELECT                    SERVICE             CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE      TYPE
1A            auto-on     01A01-02A01    in       standby   MCC
1B            auto-on     01B01-02B02    in       active
                               -
                               -

Command successfully completed

Command:
```

Screen 8-12. Example System Status Report for All Cabinets

4. Note the MODE of SPE 1A and 1B.
5. Type **refresh spe** and press ENTER.

   Command successfully completed should be displayed.
6. Type **reset system interchange** and press ENTER.

   This causes the terminal to log off.
7. Log in as craft again. See Chapter 7, "Activate the System" for more information. Remember to use the new password established for craft.
8. Type **status system cabinets-all** and press ENTER.
9. A screen similar to the following should be displayed:

```
- status system all-cabinets                                                SPE B
                          SYSTEM STATUS CABINET 1

                          SELECT  SPE ALARMS    TONE/  SERVICE SYSTEM  SYSTEM
SPE  MODE                 SWITCH  MAJOR MINOR   CLOCK  STATE   CLOCK   TONE
1A   standby               auto     1    0       1A     in     standby standby
1B   active                auto     1    0       1B     in     active  active

    SERVICE   CONTROL  DEDICATED         SERVICE  BUS ALARMS    BUS   OPEN BUS
TDM  STATE    CHANNEL    TONES      PKT   STATE  MAJOR MINOR   FAULTS  LEADS
1A    in         y          n       1
1B    in         n          y

EMERGENCY     SELECT                    SERVICE              CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE       TYPE
1A            unavail     01A01-02A01    in       standby    MCC
1B            auto-on     01B01-02B02    in       active

                           -
```

Screen 8-13. Example System Status Report for All Cabinets after Reset

10. Note the MODE for SPE 1A and 1B should have changed from that noted in Step 4.

Test Expansion Interface Boards

Check each expansion interface board in the system.

1. Verify the screen displays:

   command:

2. Type **test board xxx** where **xxx** is the cabinet, carrier, and slot (see note on page 8-1) for an expansion interface board in the system, and press ENTER.

   NOTE:
   Labels on the port network and carrier containing the board and the label on the strip under the board contain this information.

3. Verify the screen displays test results similar to the example shown below: This example is for board 2a01.

```
                              TEST RESULTS

Port      Maintenance Name  Alt. Name Test No. Result           Error Code

02A01     EXP-INTF                    237      PASS
02A01     EXP-INTF                    238      PASS
02A01     EXP-INTF                    240      PASS
02A01     EXP-INTF                    241      PASS
02A01     EXP-INTF                    244      PASS
02A01     EXP-INTF                    316      PASS
```

Screen 8-14. Example Test Results for Expansion Interface Board 2A01

If any result is FAIL, check the connections for the associated fiber optic link.

4. Repeat Steps 2 and 3 for each expansion interface board in the system.

Test Time Division Multiplexer (TDM) for each Expansion Port Network (EPN)

Check each Time Division Multiplexer (TDM) for each Expansion Port Network (EPN) in the system.

1. Verify the screen displays:

   `command:`

2. Type **test tdm port-network 2** and press ENTER.
3. Verify a test results screen similar to the one below is displayed:

```
test tdm port-network 2                                              SPE B

                                TEST RESULTS

  Port      Maintenance Name  Alt. Name Test No. Result            Error Code

  PN 02A    TDM-BUS                     294      PASS
  PN 02A    TDM-BUS                     296      PASS
  PN 02A    TDM-BUS                     297      ABORT             1005
  PN 02B    TDM-BUS                     294      PASS
  PN 02B    TDM-BUS                     296      ABORT             1005
  PN 02B    TDM-BUS                     297      PASS

Command successfully completed

Command:
```

Screen 8-15. Example Test Results for Time Division Multiplexing (TDM) Port Network 2

4. If `Result` is FAIL for any test, check the connectors of the Time Division Multiplexing (TDM) bus cables in Processor Port Network (PPN) 2.
5. Repeat these steps for each Expansion Port Network (EPN) to check the Time Division Multiplexing (TDM) bus cables.

Test Tone-Clock for each Expansion Port Network (EPN)

Check each Tone-Clock for each Expansion Port Network (EPN) in the system.

1. Verify the screen displays:

   `command:`

2. Type **test tone-clock 2A** where **2A** is the cabinet (see note on page 8-1) and carrier number for one of the Tone-Clocks installed, and press ENTER.

   If any `Result` is FAIL, check the associated time division multiplexing bus cables and intercabinet cables in the Expansion Port Network.

3. Repeat Step 2 for each installed Tone-Clock board.

Test Tone-Clock Interchange for each Expansion Port Network (EPN)

If the system is set up with Critical Reliability, test the Tone-Clock interchange for each Expansion Port Network (EPN).

1. Verify the screen displays:

   `command:`

2. Type **status system all-cabinets** and press ENTER.

   This displays the location of the Standby Tone-Clock.

3. Type **set tone-clock xx** where **xx** is the Port-Network/Carrier for the Standby Tone-Clock. Press enter.

4. Type **status system all-cabinets** and press ENTER.

5. Verify the duplicated Tone-Clock is active using the information displayed on the screen.

   If any problems are indicated, check the Time Division Multiplexing (TDM) cables in the associated Expansion Port Network (EPN).

Test Expansion Interface Exchange for Each Expansion Port Network (EPN)

If the system is set up with Critical Reliability, test the expansion interface exchange for each Expansion Port Network (EPN).

1. Verify the screen displays:

   `command:`

2. Type **status system all-cabinets** and press ENTER.

   This displays the standby expansion link.

```
status system all-cabinets                                              SPE B
                          SYSTEM STATUS CABINET 1

EMERGENCY     SELECT                    SERVICE             CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE      TYPE
1A            unavail     01A01-02A01    in       standby   MCC
1B            auto-on     01B01-02B02    in       active
                               -
                               -
Command successfully completed

Command:
```

Screen 8-16. Example of System Status before Expansion Link is Set

3. Type **set expansion-link xxxx** where **xxxx** is the either one of the cabinet, carrier, and port (see note on page 8-1) locations of the standby expansion link.
4. Verify the screen displays:

   `Command successfully completed`

   `Command:`
5. Type **status system all-cabinets** and press ENTER.

```
status system all-cabinets                                          SPE B
                          SYSTEM STATUS CABINET 1

EMERGENCY     SELECT                    SERVICE              CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE       TYPE
1A            auto-on     01A01-02A01    in       active     MCC
1B            auto-on     01B01-02B02    in       standby
```

Screen 8-17. Example of System Status after Expansion Link is Set

6. Verify the MODEs of the expansion links have changed.
7. If any problems are indicated, check the Time Division Multiplexing (TDM) cables and the inter-cabinet cables (ICC) in the associated Expansion Port Network (EPN).

Check Circuit Pack Configuration Again

Review the circuit packs contained in the system to ensure all circuit packs are displayed on the screen.

1. Verify the screen displays:

   command:

2. Type **list configuration all** and press ENTER.
3. Verify all circuit packs installed in the system are listed in the reports.

   Refer to the U.S. English book, *DEFINITY Communications System Generic 1 and Generic 3i Maintenance*, 555-104-205, to resolve any discrepancies.

Save Translations, if Required

If any administration changes have been made, save and make a back up copy of the translations. See Chapter 7, "Activate the System" for detailed instructions.

Re-install Front Doors

Put the doors back on the cabinets after all the system installation and test procedures are completed.

Next Steps

After the basic switch hardware is installed and tested, three more steps must be completed:

1. Install telephones and other equipment

   These procedures are in Chapter 9, "Install and Wire Telephones and Other Equipment".

2. Administer features, telephones, and other equipment according to customer data found on the provisioning plan.

   The data for system and telephone features can be administered using implementation procedures provided in the U.S. English book, *DEFINITY Communications System Generic 3 Implementation*, (555-230-655).

3. Test telephones and other equipment.

   These procedures are in Chapter 10, "Test Telephones and Other Equipment".

NOTE:
It may be more efficient to install each hardware component, administer it, and test it before going on to install another component. As an example, install the attendant console using the procedures in Chapter 9, "Install and Wire Telephones and Other Equipment", administer it using the procedures in the book listed above, and test it using the procedures in Chapter 8, "Test the System".

Install and Wire Telephones and Other Equipment

9

The wiring procedures are the same for most of the DEFINITY System Generic 3 telephones and other equipment.

This section provides wiring examples. These are examples only and wiring procedures may differ at each site. This section provides the following examples:

- 302B Attendant Console with Adjunct Power
- Analog Station
- Analog Tie Trunk
- Digital Tie Trunk

These examples use port circuit board positions relating to those shown in Chapter 8, "Test the System", Figure 8-4 and Figure 8-5.

Steps 1-3 of each of the following examples should have been completed in the Provisioning Plan in Chapter 2, "Plan and Prepare the Site".

Telephone Connection Example

The 302B Attendant Console is used in this section to describe a typical telephone connection. This connection information is typical of the 603E, 84xx (4-wire), 94xx telephones. Refer to Appendix E for more information on wiring telephone connections.

The 302B Attendant Console always requires auxiliary power (-48VDC). Power is connected to the console through Pins 7 and 8 of the information outlet shown in Figure 9-3. Only three consoles can be powered by the cabinet through the

auxiliary connector. When possible, the primary console should be powered from the system cabinet so it has the same power failure backup as the system itself.

The maximum cabling distance for the console powered from the cabinet is 350 feet (100 meters).

The general steps to connect a telephone are as follows:

1. Choose a telephone or peripheral to connect such as Attendant Console 302B.
2. Choose the port circuit pack to use (from circuit pack information provided in Table 9-7 on page 9-13) and its carrier and slot number. (TN754, Cabinet 1, Carrier C, Slot 02).
3. Choose a port circuit on the port circuit pack (such as Port 05).
4. Install cross-connect jumpers to wire the named pinouts on the terminal to the like-named pinouts on the port board, as shown in Table 9-1 and Figure 9-1.

   This pinout information is taken from Table 9-7 for the 302B (4-wire) and Table 9-8 and Table 9-9 for the TN754B circuit pack.
5. Administer on the console screen of the Management Terminal (G3-MT).

The wiring designations are listed in Table 9-1 and are illustrated in Figure 9-1.

Table 9-1. 302B to TN754 Wiring Designations

302B, 4-wire		TN754 (position 1C02)	
Pin (from Table 9-7)	**Name**	**Port 5 Name**	**4-wire Connector Pin Number (from Table 9-9)**
1	txt	txt5	39
2	txr	txr5	14
3	pxt	pxt5	40
6	pxr	pxr5	15

The following diagram illustrates these wiring designations.

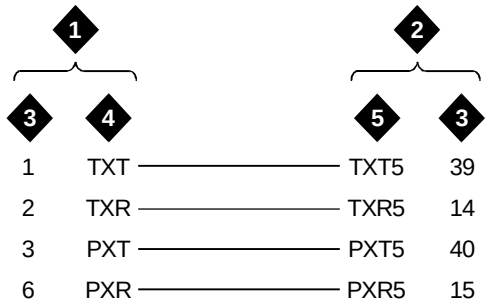


Figure Notes:

1. 302B, 4-Wire
2. TN754, Position 1C02
3. Pin Number
4. Name
5. Port 5 Name

Figure 9-1. 302B to TN754 Wiring Example

Connect Adjunct Power

1. For terminals needing adjunct power (such as Attendant Console 302B), wire -48V and ground to appropriate pinouts on the terminal, as shown in Table 9-2 and in Figure 9-2. See the section titled "Install Power Adapters" on page 9-47 for more information:

Table 9-2. Adjunct Power Wiring Examples (302B)

302B		Power Supply
Pin	Name	
7	-48V	-48V
8	GND	GND

The following diagram illustrates these wiring designations.

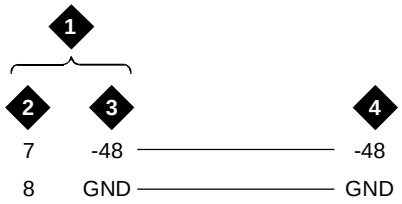


Figure Notes:

1. 302B
2. Pin Number
3. Name
4. Power Supply

Figure 9-2. Adjunct Power Wiring Example (302B)

2. The 400B2 adapter is convenient for connecting local power to a modular plug. See Figure 9-3.

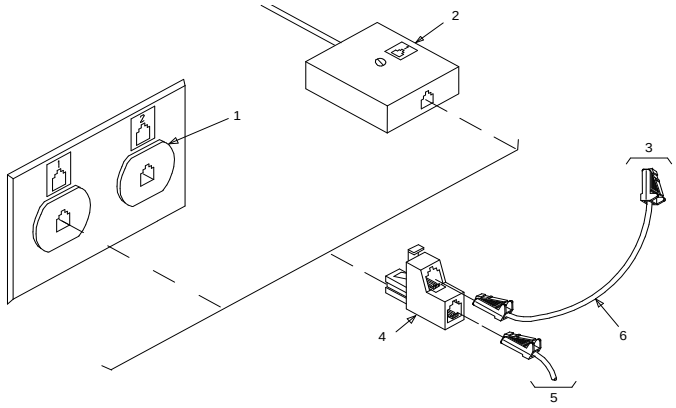


Figure Notes:

1. Flush mounted information outlet
2. Surface mounted information outlet
3. To individual power unit
4. 400B2 Adapter
5. To telephone
6. Destination Service Access Point (DSAP) power cord

Figure 9-3. 400B2 Adapter Connecting to a Modular Plug

Adjunct power can be provided from the equipment room or equipment closet with 1145B1 power unit. See "Install the 1145B1 Power Supply" on page 9-26 for more information.

Each DEFINITY System port network can provide power for up to three attendant consoles. This source of power is preferred for the attendant consoles because it has the same battery backup as the system. See the Auxiliary Power pinout information in Table 9-6 on page 9-11.

Adjunct power can be provided locally at the telephone or console by the MSP-1 Power Supply. See "Install the MSP-1 Power Supply" on page 9-34.

Analog Station or 2-Wire Digital Station Example

Steps 1-3 of each example should have been completed in the Provisioning Plan found in Chapter 2, "Plan and Prepare the Site", step 8.

This example is typical of the 2-wire digital stations (603E, 84xx, 94xx, 302B), 2-wire analog stations (500, 2500, 71xx), analog Central Office (CO) trunks, direct inward dialed (DID) trunks, and external alarms.

1. Choose a peripheral to connect (such as analog station or 2-wire digital station).
2. Choose the port circuit pack to use and its carrier and slot number (from Table 9-7 on page 9-13). (e.g., TN2183 analog line, Cabinet 1, Carrier C, Slot 1).
3. Choose a port circuit on the port circuit pack, for example Port 3.
4. Install cross-connect jumpers to connect the named pinouts from the analog station or 2-wire digital station to the like-named pinouts on the port circuit pack. This pinout information is taken from Table 9-9 for the analog station and Table 9-8 to Table 9-9 for the TN2183 circuit pack.
5. Administer on the G3 Management Terminal (G3MT). See the DEFINITY G3 *Implementation Guide* for more details.

The wiring designations for this example are listed in Table 9-4, and are illustrated in Figure 9-4.

Table 9-3. Wiring Example of Analog Station 2500 to TN2183 Analog Line

Analog Station 2500		TN2183 Analog Line, Position 1C01	
Pin (2-pair modular)	**Name**	**Port 3 Name**	**Pin**
2	T	T3	28
3	R	R3	03

The following diagram illustrates these wiring designations.

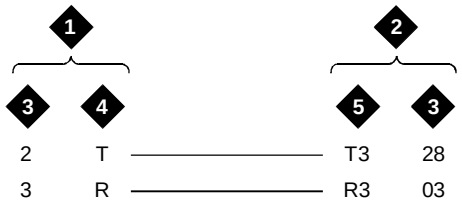


Figure Notes:

1. Analog Station 2500
2. TN2183 Analog Line, position 1C01
3. Pin Number
4. Name
5. Port 3 Name

Figure 9-4. Analog Station 2500 to TN2183 Analog Line Wiring Example

Analog Tie Trunk Example

Steps 1-3 of each example should have been completed in the Provisioning Plan in Chapter 2, "Plan and Prepare the Site", Step 8.

This example shows how to connect analog tie trunk wiring from one DEFINITY System Generic 3 to another DEFINITY System Generic 3:

1. Choose a peripheral to connect (such as Tie Trunk).
2. Choose the port circuit pack to use and its carrier and slot number. (such as TN760, Cabinet 1, Carrier C, Slot 05).

3. Choose a port circuit on the port circuit pack (such as Port 02).
4. Set option switches on the port board (TN760 tie trunk) as described in Appendix H, "Option Switch Settings".
5. Install cross-connect jumpers to connect the named pinouts from the tie trunk circuit pack to the appropriate leads on the external Tie Trunk. Names of the Tie Trunk leads must be determined from the manufacturer or supplier of the external trunk circuit. The example in Figure 9-5 and Table 9-4 shows a DEFINITY System Tie trunk connected to a DEFINITY System tie trunk. For tie trunk TN760, refer to Table 9-8 and Table 9-9.
6. Administer on the Trunk Group Screen of the terminal. See the DEFINITY G3 *Implementation Guide* for more details.

The wiring designations for this example are listed in Table 9-4 and are illustrated in Figure 9-5.

Table 9-4. Analog Tie Trunk Wiring Designations (TN760)

External Trunk or Adapter		TN760, Position 1C05	
Pin	**Port 1 Name**	**Port 2 Name**	**Pin**
26	T1	T12	30
1	R1	R12	5
27	T11	T2	29
2	R11	R2	4
28	E1	M2	6
3	M1	E2	31

The following diagram illustrates these wiring designations.

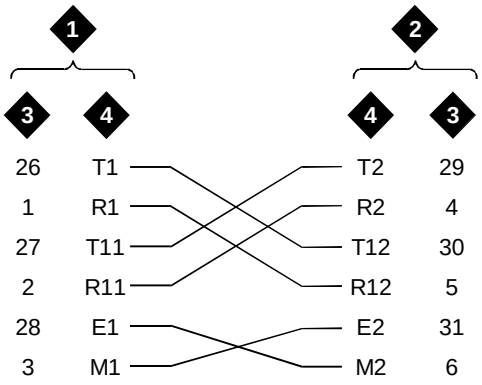


Figure Notes:

1. External Trunk or Adapter
2. TN760, Position 1C05
3. Pin Number
4. Port 2 Name

Figure 9-5. Analog Tie Trunk Wiring Example (TN760)

In Figure 9-5, the following abbreviations apply:

T,R	Private Branch Exchange (PBX) voice transmit
T1,R1	Private Branch Exchange (PBX) voice receive
M	Private Branch Exchange (PBX) signal send
E	Private Branch Exchange (PBX) signal receive

Digital Tie Trunk Example

Steps 1-3 of each example should have been completed in the Provisioning Plan in Chapter 2, "Plan and Prepare the Site", Step 8.

This example shows how to connect digital tie trunk wiring from one DEFINITY System Generic 3 to another DEFINITY System Generic 3:

1. Choose a peripheral to connect (such as DS1/E1)
2. Choose the port board to use and its carrier and slot number (such as TN464, Cabinet 1, Carrier C, Slot 06).
3. Choose a port circuit on the port board (such as Port 03).
4. Install cross-connect jumpers to connect the named pinouts from the Digital Trunk circuit pack to like-named pinouts on the manufacturer's or supplier's external digital trunk as shown in the following example. This pinout information is taken from Table 9-8 on page 9-16 and Table 9-9 on page 9-17.
5. Set option switches on the port circuit pack (TN464 digital trunk) according to Appendix H, "Option Switch Settings".
6. Administer on the Digital Service Level 1 (DS1) and Trunk Group Screens of the G3 Management Terminal. See the DEFINITY G3 *Implementation Guide* for more details.

The wiring designations for this example are listed in Table 9-5, and are illustrated in Figure 9-6.

Table 9-5. Digital Tie Trunk Wiring Designations (TN464)

External Trunk Circuit Name	TN464, Position 1C06	
	Name	Pin Number
LI (Line In)	LO (Line Out)	48
LI* (Line In)	LO* (Line Out)	23
LO* (Line Out)	LI* (Line In)	47
LO (Line Out)	LI (Line In)	22

LI* Balanced Input Pair.

LO* Balanced Output Pair.

The following diagram illustrates these wiring designations.

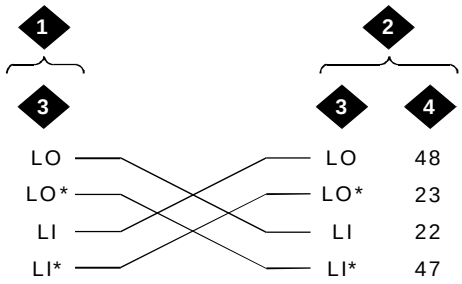


Figure Notes:

1. External Trunk
2. TN464, Position 1C06
3. Name
4. Pin Number

- LI* Balanced Input Pair
- LO* Balanced Output Pair

Figure 9-6. TN464 Wiring Example

Auxiliary Connector Outputs

The control carrier outputs cable pinouts are shown in Table 9-6 on page 9-11. The control carrier **AUX** connector outputs include the following:

- Alarm monitoring for the auxiliary cabinet
- Seven -48VDC power sources for emergency transfer units
- Three -48VDC power sources for remotely powering three attendant consoles or telephone adjuncts.
- The INADS (remote system management terminal interface) trunk connection location.
- Access to a relay contact is available to actuate a light, bell, or similar type customer-provided alarm device. The relay can be administered to make contact when a major, minor or warning alarm condition occurs in the switch. The circuitry required for this feature must be provided by the customer. The device connected to the alarm leads must not exceed a rating of 100 volts at 3/4 amps. The pinouts for an external alarm are shown in Table 9-6 on page 9-11.

A connector labeled *AUX* is provided on the back of the control carrier. Connect a 25-pair cable from this connector to a connecting block of the trunk/auxiliary field designated by callout 2 in Figure 5-1 on page 5-2.

Table 9-6. Auxiliary Lead Appearances at AUX Connector on Cabinet Back

Color [1,2]	Pin Number	Single-Carrier Auxiliary Connection Outputs		808A Emergency Transfer Unit Outputs	574-5 Power Transfer Unit Outputs
W-BL BL-W	26 1	Major*		TC	TC
W-O O-W	27 2	Minor*		TK	TK
W-G G-W	28 3	GRD		LC	LC
W-BR BR-W	29 4	GRD		ST	ST
W-S S-W	30 5	GRD		TC	TC
R-BL BL-R	31 6	GRD		TK	TK
R-O O-R	32 7	GRD		LC	LC
R-G G-R	33 8	Not Connected		ST	ST
R-BR BR-R	34 9	Not Connected		TC	TC
R-S S-R	35 10	Not Connected		TK	TK
BK-BL BL-BK	36 11	-48 GND	Emergency Transfer Relay Power Ø	LC	LC
BK-O O-BK	37 12	-48 GND		ST	ST
BK-G G-BK	38 13	-48 GND		TC	TC
BK-BR BR-BK	39 14	-48 GND		TK	TK
BK-S S-BK	40 15	-48 GND		LC	LC
Y-BL BL-Y	41 16	-48 GND		ST	ST
Y-O O-Y	42 17	-48 GND		TC	TC

Table 9-6. Auxiliary Lead Appearances at AUX Connector on Cabinet Back

Color [1,2]	Pin Number	Single-Carrier Auxiliary Connection Outputs		808A Emergency Transfer Unit Outputs	574-5 Power Transfer Unit Outputs
Y-G	43	Not Connected		TK	TK
G-Y	18				
Y-BR	44	GND	Aux Power	LC	LC
BR-Y	19	-48	Ø		
Y-S	45	GND		ST	ST
S-Y	20	-48			
V-BL	46	GND		COM1	COM1
BL-V	21	-48		NO1	N01
V-O	47	Not Connected		NC2	NC2
O-V	22			NC1	NC1
V-G	48	Ext Alarm A**		COM2	C0M2
G-V	23	Ext Alarm Return		N02	N02
V-BR	49	Not Connected			
BR-V	24				
V-S	50	INADS Tip		GRD	GRD
S-V	25	INADS Ring		-48V	-48V

* External alarm, with signal incoming to switch.
** External alarm, with signal outgoing from switch.
1 Color designation is AA-BB, where AA is the main wire color, and BB is the color of the short stripe on the wire.
2 For translation purposes, the following wire colors apply in the above table:

W	White
BL	Blue
O	Orange
G	Green
BR	Brown
S	Slate (Grey)
R	Red
BK	Black
Y	Yellow
V	Violet

Table 9-7. Port Board and Telephone Pin Designations

Pin on Modular plug	4-wire; 302B, 8403, 8410, 8434, 603E, 9403, 9434	2-wire; 302B, 8403, 8410, 8434, 603E, 9403, 9410, 9434	8510T Basic Rate Interface (BRI) (with adjunct speaker phone)	Analog Station, Modem	NT1	Z3A1 & Z3A2 Asynchronous Data Units (ADU), Processor Data Module (PDM)
1	TXT					TXT
2	TXR			T		TXR
3	PXT		TXT	R		PXT
4		T	PXR		T	
5		R	PXT	No Connection (4-pin modular jack)	R	
6	PXR		TXR			PXR
7	-48VDC	(-48VDC)	(-48VDC)		-48VDC	
8	GRD	GRD	GRD		GRD	
Circuit Pack	**TN754 4-wire digital**	**TN2181 2-wire digital**	**TN556, integrated services digital network basic rate interface line**	**TN2183 Analog line**	**TN2198 2-wire basic rate interface line**	**TN726 Data Line**

PX	private branch exchange transmit	T	Tip	(A)
TX	Terminal transmit	R	Ring	(B)

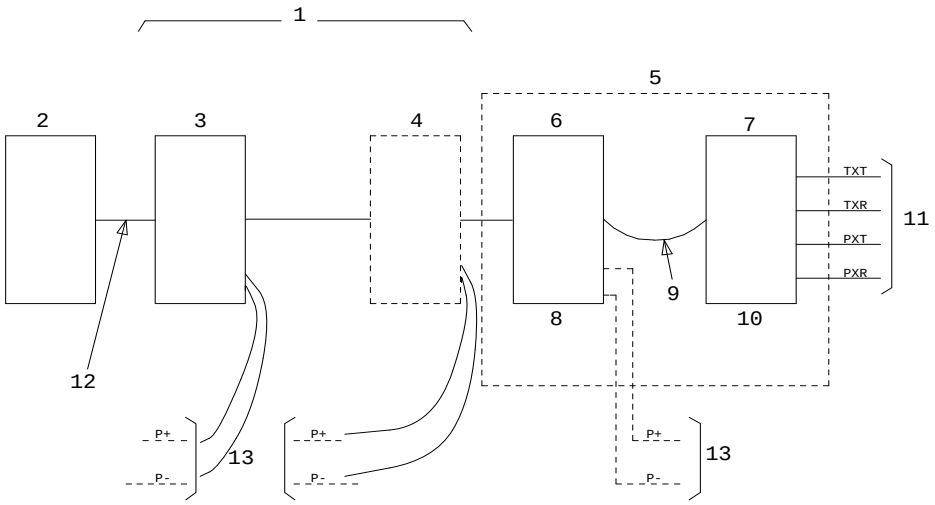


Figure Notes:

1. Station Wiring
2. Attendant Console
3. Information Outlet
4. Satellite site, or adapter location
5. Part or cross-connect field
6. Station side
7. Switch side
8. Blue or white field
9. 100P6A patch cord or jumpers
10. Purple field
11. TN754 circuit pack port
12. 4-pair line cord
13. -48 VDC power source

Figure 9-7. Connections for Attendant Console

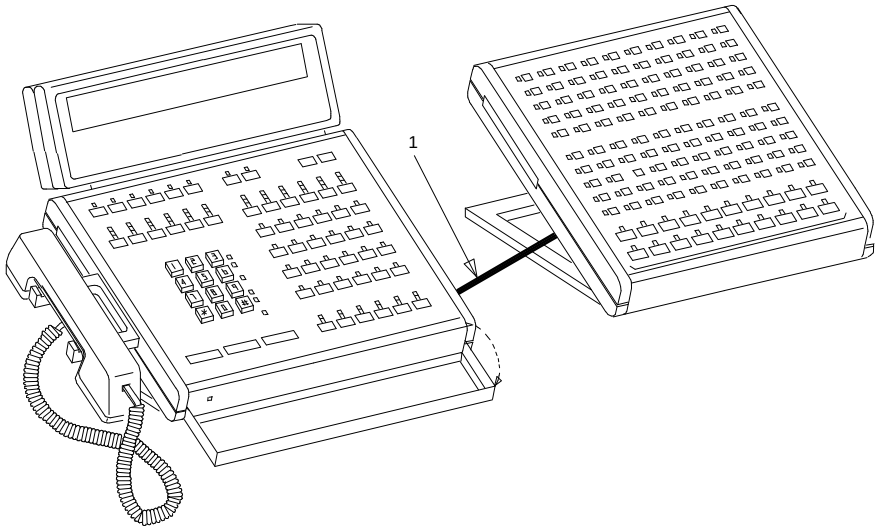


Figure Notes:

1. Cable connection

Figure 9-8. 302B1 Attendant Console

APP Connector and Cable Diagrams (Pinout Charts)

See Table 9-9 for lead designations. The circuit packs and auxiliary equipment are classified as follows:

Table 9-8. Circuit Pack and Auxiliary Equipment Classifications

Analog Line (8)	2-Wire Digital & Analog Line (16)	Data Line	Digital Line 4-Wire	Hybrid Line	MET Line	Auxiliary Trunk	Central Office Trunk	Central Office Trunk 3-Wire	DID/ DIOD Trunk	Tie Trunk	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire
TN467	TN2149	TN726	TN413	TN762	TN735	TN417	TN429		TN429	TN478	TN483	TN556	TN2198
TN432	TN2135		TN754B	TN762B		TN763	TN493		TN2139	TN458	TN722		
TN431	TN468		TN564B			TN763D	TN422		TN459	TN449	TN767B		
TN411B	TN448						TN421		TN436	TN434	TN722B		
TN742	TN746						TN438		TN414	TN415	TN464D		
TN769	TN746B						TN447		TN2146	TN760			
							TN465		TN753	TN760D			
							TN747B						
							TN2138						
							TN2147						
							TN2148						

1. DID means Direct Inward Dialing
2. DIDO means Direct Inward Outward Dialing
3. DS1 means Digital Services Level 1
4. ISDN means Integrated Services Digital Network
5. BRI means Basic Rate Interface
6. MET means Multibutton Electronic Telephone

Table 9-9. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color [1,2]	Conn. Pin Numbers	Analog Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line	Digital Line 4-wire	Hybrid Line	MET Line	AUX Trk.	CO Trk.	CO Trk. 3-wire	DID/ DIOD Trk.	Tie Trk.	DS1 Tie Trk.	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire
W-BL	26	T1	T1			V1T1	T1	T1	T1	A1	T1	T1		PXR1	T1
BL-W	01	R1	R1			V1R1	R1	R1	R1	B1	R1	R1		PXT1	R1
W-O	27		T2	TXT1	TXT1	CT1	TXT1	SZ1				T11		TXT1	T2
O-W	02		R2	TXR1	TXR1	CR1	TXR1	SZ11				R11		TXR1	R2
W-G	28		T3	PXT1	PXT1	P-1	PXT1	S1				E1		PXR2	T3
G-W	03		R3	PXR1	PXR1	P+1	PXR1	S11		C1		M1		PXT2	R3
W-BR	29	T2	T4			V1T2	T2	T2	T2	A2	T2	T2		TXT2	T4
BR-W	04	R2	R4			V1R2	R2	R2	R2	B2	R2	R2		TXR2	R4
W-S	30			TXT2	TXT2	CT2	TXT2	SZ2				T12		PXR3	T5
S-W	05			TXR2	TXR2	CR2	TXR2	SZ12				R12		PXT3	R5
R-BL	31			PXT2	PXT2	P-2	PXT2	S2				E2		TXT3	T6
BL-R	06			PXR2	PXR2	P+2	PXR2	S12		C2		M2		TXR3	R6
R-O	32	T3				V1T3	T3	T3	T3	A3	T3	T3		PXR4	T7
O-R	07	R3				V1R3	R3	R3	R3	B3	R3	R3		PXT4	R7
R-G	33			TXT3	TXT3	CT3	TXT3	SZ3				T13		TXT4	T8
G-R	08			TXR3	TXR3	CR3	TXR3	SZ13				R13		TXR4	R8
R-BR	34		T5	PXT3	PXT3	P-3	PXT3	S3				E3		PXR5	T9
BR-R	09		R5	PXR3	PXR3	P+3	PXR3	S13		C3		M3		PXT5	R9
R-S	35	T4	T6			V1T4	T4	T4	T4	A4	T4	T4		TXT5	T10
S-R	10	R4	R6			V1R4	R4	R4	R4	B4	R4	R4		TXR5	R10
BK-BL	36		T7	TXT4	TXT4	CT4	TXT4	SZ4				T14		PXR6	T11

Continued on next page

Table 9-9. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts) — *Continued*

Color [1,2]	Conn. Pin Numbers	Analog Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line	Digital Line 4-wire	Hybrid Line	MET Line	AUX Trk.	CO Trk.	CO Trk. 3-wire	DID/ DIOD Trk.	Tie Trk.	DS1 Tie Trk.	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire
BL-BK	11		R7	TXR4	TXR4	CR4	TXR4	SZ14				R14		PXT6	R11
BK-O	37		T8	PXT4	PXT4	P-4	PXT4	S4				E4		TXT6	T12
O-BK	12		R8	PXR4	PXR4	P+4	PXR4	S14				M4		TXR6	R12
BK-G	38	T5	T9			V1T5			T5		T5			PXR7	
G-BK	13	R5	R9			V1R5			R5		R5			PXT7	
BK-BR	39		T10	TXT5	TXT5	CT4								TXT7	
BR-BK	14		R10	TXR5	TXR5	CR4								TXR7	
BK-S	40		T11	PXT5	PXT5	P-5								PXR8	
S-BK	15		R11	PXR5	PXR5	P+5								PXT8	
Y-BL	41	T6	T12			V1T6			T6		T6			TXT8	
BL-Y	16	R6	R12			V1R6			R6		R6			TXR8	
Y-O	42			TXT6	TXT6	CT6								PXR9	
O-Y	17			TXR6	TXR6	CR6								PXT9	
Y-G	43			PXT6	PXT6	P-6								TXT9	
G-Y	18			PXR6	PXR6	P+6								TXR9	
Y-BR	44	T7				V1T7			T7		T7			PXR10	
BR-Y	19	R7				V1R7			R7		R7			PXT10	
Y-S	45			TXT7	TXT7	CT7								TXT10	
S-Y	20			TXR7	TXR7	CR7								TXR10	
V-BL	46		T13	PXT7	PXT7	P-7								PXR11	
BL-V	21		R13	PXR7	PXR7	P+7								PXT11	
V-O	47	T8	T14			V1T8			T8		T8		LI*	TXT11	
O-V	22	R8	R14			V1R8			R8		R8		LI	TXR11	

Continued on next page

Table 9-9. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts) — *Continued*

Color [1,2]	Conn. Pin Numbers	Analog Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line	Digital Line 4-wire	Hybrid Line	MET Line	AUX Trk.	CO Trk.	CO Trk. 3-wire	DID/ DIOD Trk.	Tie Trk.	DS1 Tie Trk.	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire
V-G	48		T15	TXT8	TXT8	CT8							LO	PXR12	
G-V	23		R15	TXR8	TXR8	CR8							LO*	PXT12	
V-BR	49		T16	PXT8	PXT8	P-8							LBACK2	TXT12	
BR-V	24		R16	PXR8	PXR8	P+8							LBACK1	TXR12	

Continued on next page

Table 9-9. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts) — *Continued*

Color [1,2]	Conn. Pin Numbers	Analog Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line	Digital Line 4-wire	Hybrid Line	MET Line	AUX Trk.	CO Trk.	CO Trk. 3-wire	DID/ DIOD Trk.	Tie Trk.	DS1 Tie Trk.	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire
V-S	50														
S-V	25														

† The wire colors in this pinout chart apply only to B25A and A25B cables. H600-307,60 cable colors are not shown.

Within this chart, the following abbreviations apply for analog tie trunks:

T,R	PBX transmit voice
T1,R1	PBX receive voice
M	PBX transmit signal
E	PBX receive signal

PX	PBX transmit	T	Tip	(A)	Green
TX	Terminal transmit	R	Ring	(B)	Red
		S	Sleeve		

LI, LI*	Digital Trunk IN
LO, LO*	Digital Trunk OUT

1 Color designation is AA-BB, where AA is the main wire color, and BB is the color of the short stripe on the wire.

2 For translation purposes, the following wire colors apply in the above table:

W	White
BL	Blue
O	Orange
G	Green
BR	Brown
S	Slate (Grey)
R	Red
BK	Black
Y	Yellow
V	Violet

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Install Initialization and Administration System (INADS) Interface

The Initialization and Administration System (INADS) provides a 1200 Bits Per Second (bps) modem connection for the remote management terminal for DEFINITY System Generic 3.

Figure 9-9 shows a typical Initialization and Administration System (INADS) installation, where the analog port is connected from the switch directly to the connectors on the auxiliary cable pins.

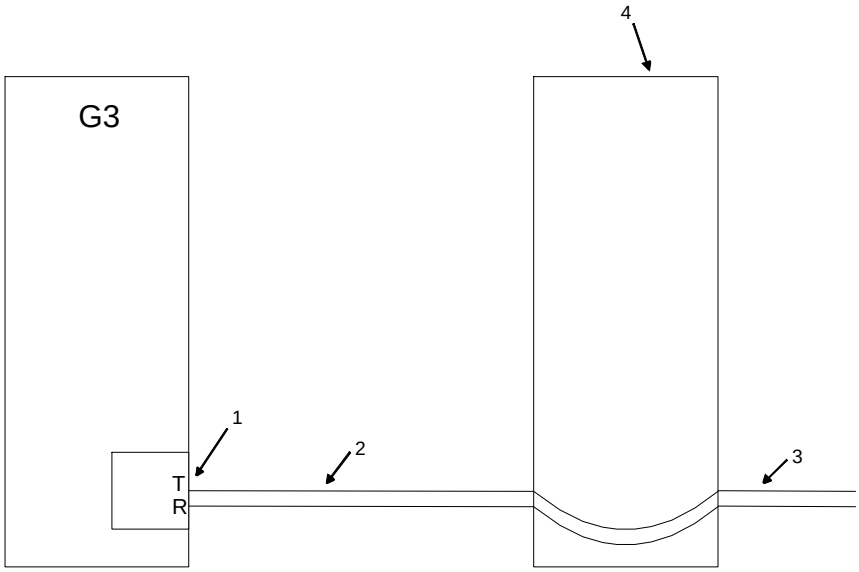


Figure Notes:

1. Initialization and Administration System (INADS) interface on AUX connector (see Table 9-6 on page 9-10)
2. Auxiliary cable
3. External analog Central Office (CO) trunk
4. Cross-connect field

Figure 9-9. Analog Port Connection

As an alternative, Figure 9-10 illustrates a switched connection to the Initialization and Administration System (INADS) interface.

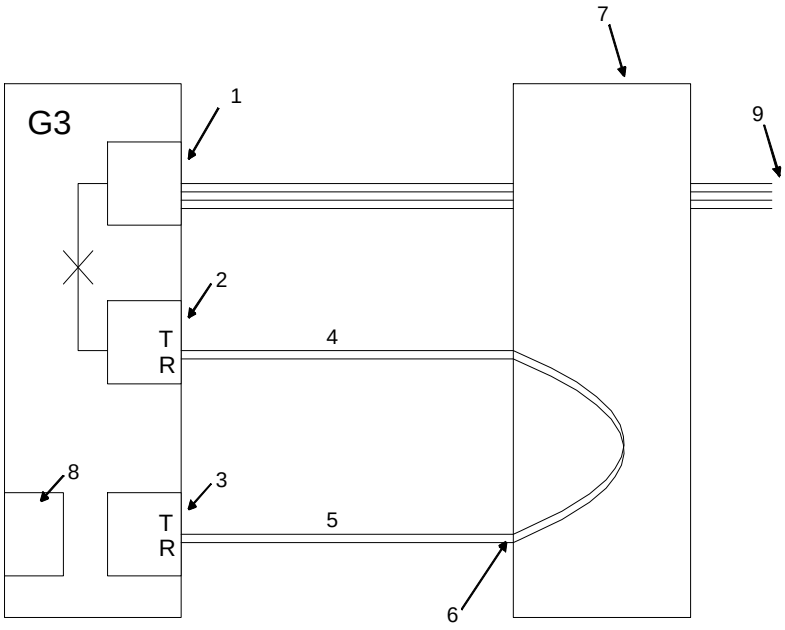


Figure Notes:

1. Digital Central Office (CO) trunk (TN464)
2. Analog line (TN2183)
3. Initialization and Administration System (INADS) Interface (T,R)
4. Analog extension (T,R)
5. Auxiliary cable
6. Pin 26-50 (refer to pinout chart)
7. Cross-connect field
8. Processor (TN786)
9. External digital Central Office (CO) trunk

Figure 9-10. Initialization and Administration System (INADS) Installation for Digital Trunk Access

Install Emergency Transfer Units and Associated Telephones

Emergency transfer capability is provided by a transfer unit mounted on the wall next to the trunk/auxiliary cross-connect field.

Analog telephones can be used for emergency transfer. The 500-and 2500-type telephones can also be used as normal extensions. Emergency transfer capability may be provided on Central Office (CO) trunks.

The following transfer units are available:

- The 808A Emergency Transfer Panel provides emergency trunk bypass or power-fail transfer for up to five incoming analog Central Office (CO) trunk loops to five selected private branch exchange analog single line telephones. When a power failure or other system problem interrupts service, the sets are automatically and directly connected to the Central Office trunks and are available for emergency use outside the private branch exchange service environment.

  When a telephone connected to the 808A goes off-hook during bypass, circuitry inside the panel places signalling on the Central Office (CO) trunk causing the Central Office (CO) to return dial tone. Each 808A bypass circuit can be switched to either loop start or ground start signalling.

- The 574-5 power transfer unit serves up to five power failure transfer telephones. The unit provides automatic ground start.

At the cross-connect field, the transfer units are connected to a yellow terminal row/connecting block in the trunk/auxiliary field. The units are powered (-48VDC) from the **EM TRANS RELAY PWR** terminals. Refer to Figure 9-6 for pinout information. There are seven EM TRANS RELAY PWR terminal pairs to provide power to up to seven transfer units.

Install the 808A Emergency Transfer Panel

The 808A is connected to the cross-connect field through a B25A or A25B cable. Install the 808A Emergency Transfer Panel according to the instructions packed with the unit.

Install External Ringing

Requirements

Figure 9-11 on page 9-25 shows the connections for external ringing provided by a device, such as a gong, chime, or bell, connected to an information outlet. The switch side of the cross-connect field is connected to an analog line circuit pack (such as a TN2183) located in a port carrier. A maximum of three devices can be connected to one TN2183 circuit pack port.

Installation

Install ringing device as follows:

1. Determine port assignment of “External Alert Port (trunk answer any station)” feature from Console Parameters Form:

EXAMPLE: Port Number	2	B	02	01
	Cabinet	Carrier	Slot	Circuit

2. Install patch cord/jumper wires at cross-connect field.
3. Mount the ringing device at the location specified in the Provisioning Plan. Refer to "Plan and Prepare the Site" on page 1-3.
4. Connect a 2-pair line cord (modular plug at one end) from the information outlet to the ringing device (Figure 9-3).
5. Connect red (R) and green (T) leads to the ringing device.
6. Administer according to the instructions found in the U.S. English book, *DEFINITY Communications System Generic 3 Implementation*, 555-230-655.

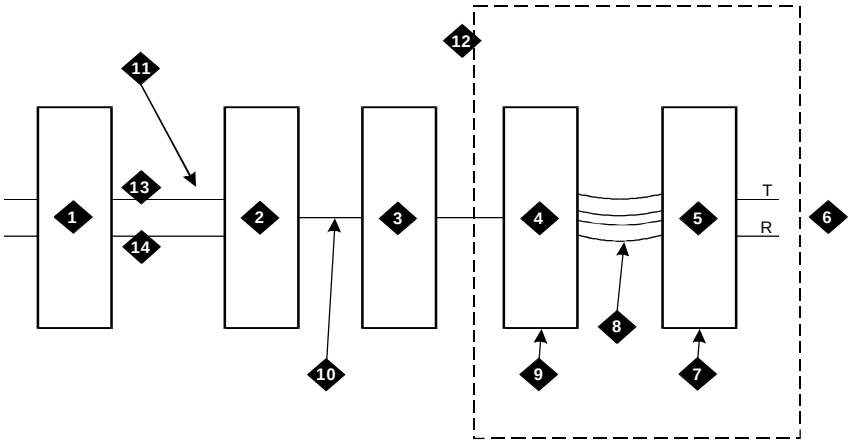


Figure Notes:

1. AC lamp or ringing device
2. Information outlet
3. Satellite site or adapter location
4. Station side
5. Switch side
6. Analog line port circuit pack (TN2183 or TN746B circuit pack)
7. Purple field
8. Patch cord or jumpers
9. Blue or white field
10. Station wiring
11. Line cord
12. Part of cross connect field
13. Red
14. Green

Figure 9-11. Connections for External Ringing or Queue Warning Indicator

Install Queue Warning Indicator

Requirements

Figure 9-11 shows the connections for the queue warning indicator. An AC indicator (lamp) such as a 21C49 is optional for use as a queue warning indication in a Uniform Call Distribution (UCD)/Direct Departmental Calling (DDC) queue. The lamp is connected to an information outlet. The switch side of the cross-connect field is connected to an analog line circuit pack (such as a TN2183) located in a port carrier.

Installation

Install queue warning indicator as follows:

1. Determine port assignment for queue warning indicator from Hunt Group Form:

EXAMPLE: Port Number	2	B	02	01
	Cabinet	Carrier	Slot	Circuit

2. Install patch cord/jumper wires at cross-connect field.
3. Mount indicator at specified location.
4. Connect a 2-pair line cord (modular plug at one end) from the information outlet to the indicator. See Figure 9-3.
5. Connect red (R) and green (T) leads to the indicator.
6. Administer per *DEFINITY Communications System Generic 3 V2 Implementation*, 555-230-655.

Install the 1145B1 Power Supply

The 1145B1 closet power arrangement provides an uninterruptible -48VDC power source with battery and 1145B1 distribution unit for Integrated Services Digital Network (ISDN)/digital communications protocol terminal equipment, terminal adjuncts, and other customer provided equipment. During AC power interruptions, batteries automatically provide continuous power to the load.

During normal operation, the power supply/charger provides DC power to the load via the distribution unit while maintaining the battery in a fully charged condition. A manual switch on the distribution unit allows the user to redirect reserve power to outputs 1 through 8 or 1 through 32, *with the switch set to the 1 through 32 setting, all outputs will be provided battery reserve power.*

The 1145B1/1146B1 is a -48V power supply with 200 watt total output. This unit is a 110-type distribution unit with 32 output circuits. Each output is current limited by a positive temperature coefficient thermistor (PTC). The thermistor limits the maximum output to 12 watts and prevents excessive current from causing hazards. If the thermistor is current limiting, there is a short across the power pair. Each 1145B1 output has an individual light emitting diode to indicate the status of the thermistor. If the light emitting diode is on, the thermistor has a short on that power pair.

Not all outputs can simultaneously provide 12 watts. The average power per output cannot exceed 6.25 watts (200/32 = 6.25). *The 1145B1 is designed to power one integrated services digital network terminal or digital communications protocol adjunct per output. The maximum number of terminals or adjuncts is*

32. The 1145B1 (not 1145A1) is required for installation outside the United States.

Auxiliary power (local or bulk) is always required in the following situations:

- Attendant console 302B.
- Any 8520 terminal.
- Any 7500-series or 8500-series terminal with an asynchronous data module.
- Any 7500-series terminal (whether in passive bus, or point to point, that is, one per basic rate interface port).
- Any 8510 terminal in passive bus or with an asynchronous data module. (Provide auxiliary power to an 8510 unless you are certain it will never be used to support such applications as data or video.)

This section tells how to install the 1145B1 Power Supply, 1146B1 Power Distribution Unit, and 2.5 amp hour (AH) back-up batteries. All units are mounted on wall-mounting plates. The wall-mounting plates should be installed first. The rest of the hardware can be mounted in any desired order. The next illustration shows how the power supply and wall-mounting plates fit together.

Wall-Mounting Plates

Two wall mounting plates are provided for easy assembly and to provide correct spacing between units for cooling. The top plate is needed for mounting the back-up battery. The bottom plate is needed to mount the Power Supply and Distribution Units. The plates can also be used for rack mounting the hardware by means of standard rack-mounting brackets.

1. Locate one plate directly below the other one such that the AC power cord (6-1/2 feet or 2 meters) reaches the desired electrical outlet from a power supply mounted on the bottom plate. Both plates should be located so the raised letters are right side up.

   NOTE:
   A maximum of four Power Supplies can be powered from one dedicated 110VAC, 20 amp (or 230VAC, 15A) feeder. Use only unswitched receptacles. In other words, receptacles not connected to a wall switch.

2. Secure the wall mounting plates to a standard 3/4 inch (2 cm) thick plywood mounting board. Each mounting plate comes with four #10x1/2-inch wood screws.

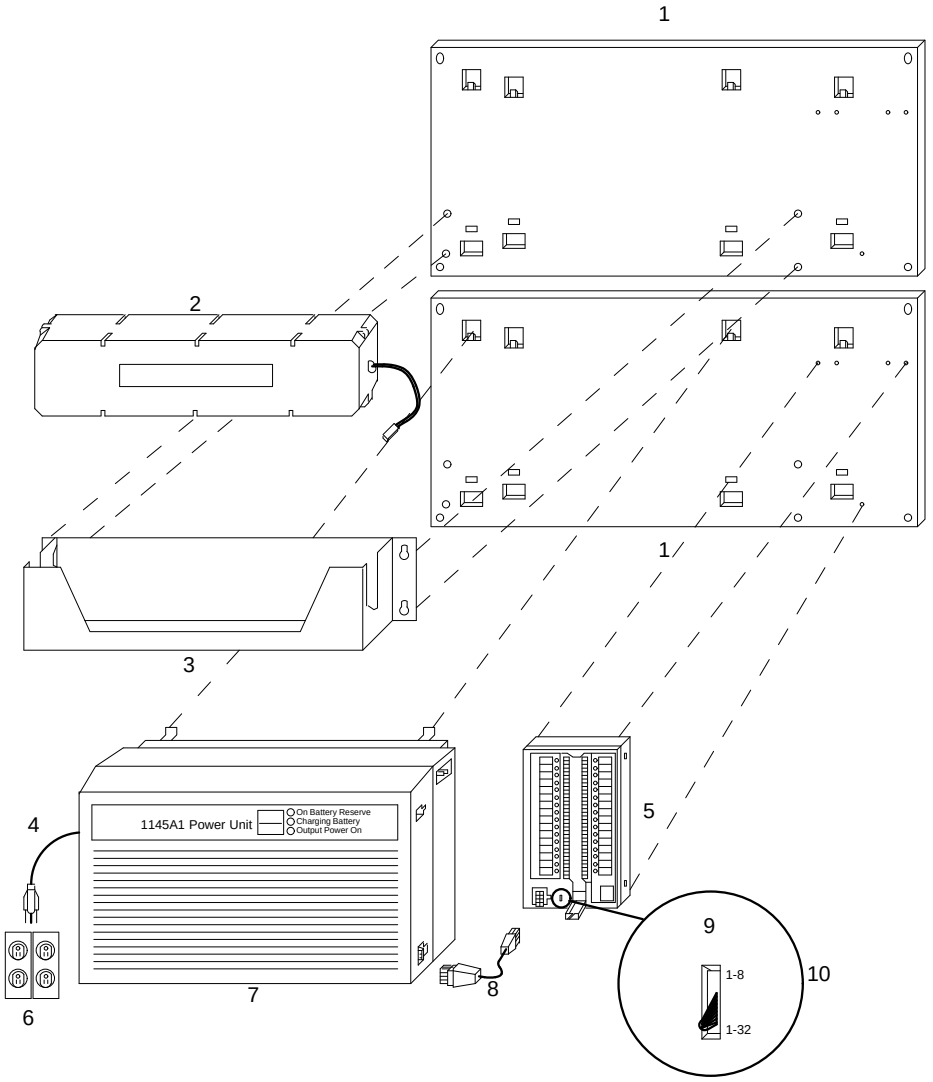


Figure Notes:

1. Wall mounting plate
2. 2.5 Amp Hour Battery
3. Battery bracket
4. AC power cord
5. 1146B power distribution unit
6. Unswitched outlet 120 VAC, 20 Amp or 230 VAC, 15 Amp)
7. 1145B Power Supply
8. Power cable
9. Battery backup switch settings
10. Inset

■ Wall must be at least 3/4” (1.9 cm) wood

Figure 9-12. 1145B1/1146B1 Mounting Arrangement

Mount the 1145B1 Power Supply

The 1145B1 Power Supply unit is snap-fitted onto the bottom wall mounting plate without tools.

1. Perform this step using a "place, rotate, then snap" motion. The holes used for 1145B1 Power Supply mounting are indicated on the wall-mounting plate. The preceding illustration shows a side view of the mounting arrangement.

   To dismount the unit, push the bottom of the power unit toward the mounting plate while pressing the two snaps on the bottom. Rotate upward and lower the unit.

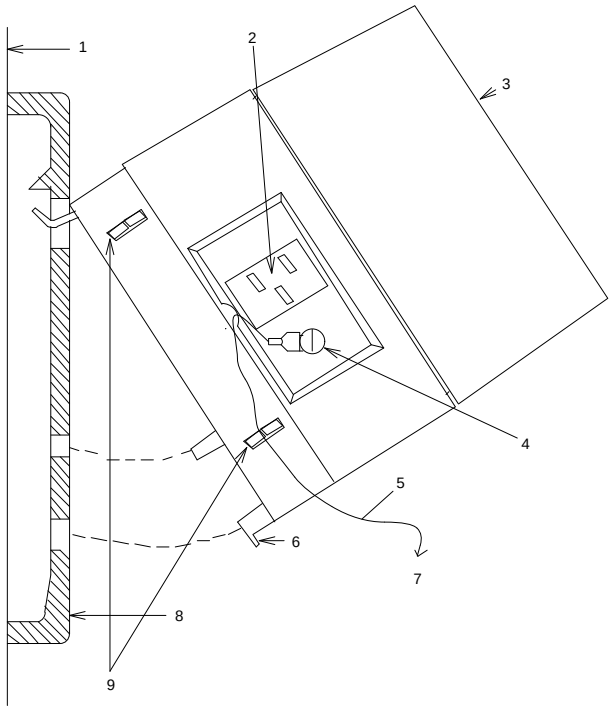


Figure Notes:

1. 3/4 inch (2 cm) Plywood
2. AC Receptacle
3. 1145B1 Power Unit
4. Frame Ground
5. 16 AWG Installer Wiring
6. Snap
7. To Approved Ground
8. Wall Mounting Plate
9. Power Cord Snap-in Clips

Figure 9-13. Side View of 1145B1 Power Supply Mounting

2. An installer-provided insulated ground wire, 16 AWG or greater, is required to connect the Power Supply frame ground lug to an approved ground. The Power Supply frame ground screw is located next to the AC receptacle to the left of the unit. The ground screw and the AC receptacle are shown in the preceding illustration.
3. Mark the Unit Number and Connectivity information on the front label next to the light emitting diodes.

Mount the 1146B1 Power Distribution Unit

The Power Distribution Unit is mounted onto the bottom wall mounting plate with three screws.

1. Insert and securely tighten the two #8-32x1/2-inch shoulder screws (they have an unthreaded section at the top) into the top holes designated for 1146B1 Power Distribution Unit on the wall mounting plate. Mount the unit on these two shoulder screws, using the key holes on the back of the unit. Secure the unit by inserting the #8-32x1-inch screw through the bottom of the unit (just above the wire clips) into the wall mounting plate and tighten.
2. Select the desired battery back-up switch option. The switch is preset to 1-32 (down position) option to provide battery back-up to all outputs. The up position provides battery back-up to outputs 1-8 only.
3. Connect the Power Distribution Unit to the Power Supply with the power cable. Bend and connect the cable. Refer to the Power Supply's right-hand label to locate the output power connection.

Battery Mounting/Wiring

The back-up battery is placed in the battery bracket mounted onto the top wall-mounting plate using the four #10-32x1/2-inch screws.

1. Insert (do not tighten) two #10-32x1/2-inch screws into the top designated battery bracket holes on the wall mounting plate.
2. Place the battery bracket on these two screws and tighten the screws.
3. Insert the remaining two #10-32x1/2-inch screws into the battery bracket bottom holes and tighten.
4. Place the battery in the bracket. The battery cord exits from the right of the bracket. Make sure the label on the battery is visible.
5. Plug the battery cord into the Power Supply's right rear receptacle. The rear receptacle is indicated on the Power Supply's right label.

Power Up and Test

Powering up and testing should be performed only after all the hardware is properly mounted. The following table describes the meaning of the Power Supply light emitting diodes when lit.

Light Emitting Diode Colour	Meaning
Green	Power Supply is providing power
Yellow	Battery is charging
Red	Power Supply is on battery reserve

1. Connect the AC power cord to Power Supply and route the cord to an appropriate AC outlet using the clips provided on the unit.

   NOTE:
   A maximum of four Power Supplies can be powered from one dedicated 110VAC, 20A feeder. Use only unswitched receptacles.

2. Plug the cord into the outlet. This powers up the Power Supply (no ON/OFF switch).
3. Check AC operation of the 1145B1 Power Supply by monitoring the light emitting diodes (LED):

   PASS: Green and yellow light emitting diodes (LED) at front of the unit should be lit together. Green means the Power Supply is providing power. Yellow means the battery is being charged. After the battery reaches full charge (maximum of twenty hours), the yellow light emitting diode (LED) should go out.

   FAIL: If either green or yellow light emitting diode (LED) is not lit after powering up, check the connections. Test the AC outlet. If power is available to the Power Unit and the AC power cord and connections are good, replace the power unit.

4. Disconnect the AC plug on the Power Supply, this activates the DC supply.
5. Check DC (battery back-up) operation of the 1145B1 Power Supply by monitoring the light emitting diodes (LED):

   PASS: The red and green light emitting diodes (LED) should be lit together. Red means the Power Supply is on battery back-up.

   FAIL: If either green or red light emitting diode (LED) is not lit after disconnecting AC power, check the connections. If the connections are good, replace the power unit or batteries.

6. Reconnect AC power to the Power Supply. The green and yellow light emitting diodes (LED) should light as described before.

Wire the 1146B1 Power Distribution Unit

It may be better to wire endpoints to the 1146B1 while power from the 1145B1 is on. This way, a red light emitting diode (LED) on the distribution unit lights if you connect its associated circuit to shorted building wiring or to a shorted terminal.

1. Install cross-connect jumpers to wire from the Distribution Unit (the label shows polarity) to Pins 7 and 8 of the appropriate information outlet. Route the wires through the clip provided on the unit. If a red light emitting diode (LED) is on, see the next section *Reset light emitting diodes (LED) on Power Distribution Unit*. The following illustration shows a typical connection.
2. Mark lead destination on the label next to each connector on the Distribution Unit. Also mark the Unit Number and Connectivity information on the label.

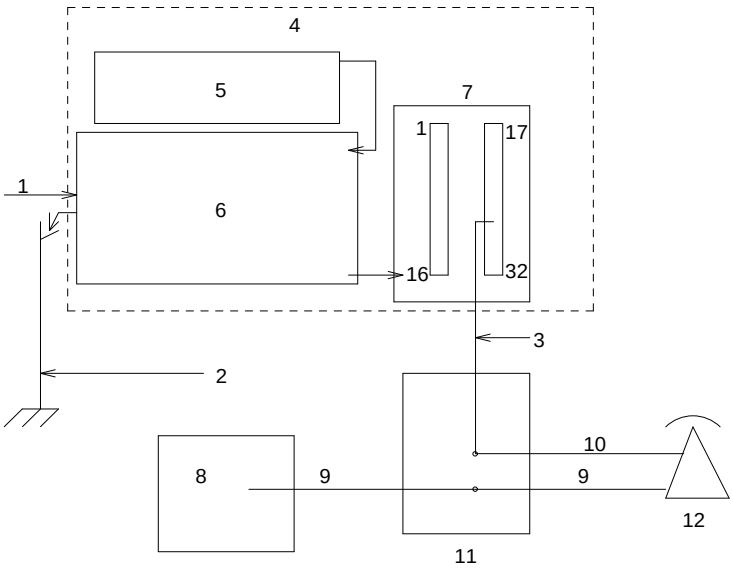


Figure Notes:

1. Alternating Current (AC)
2. Installer-provided ground wire
3. Circuits 1-32
4. Power supply kit
5. Battery
6. 1145B1 Power Supply
7. 1146B1 Distribution Unit
8. Private branch exchange Port Circuit
9. Tip and Ring
10. Pins 7 & 8
11. Cross-Connect
12. Integrated Services Digital Network (ISDN)/ Display System Protocol (DSP) Terminal

Figure 9-14. Typical Wiring to a Terminal

Reset Light Emitting Diodes (LED) on Power Distribution Unit

A lit red light emitting diode (LED) next to any of the 32 power output connectors on the Power Distribution Unit indicates a short circuit in the building wiring or the terminal equipment. To reset the light emitting diode (LED), perform the following:

1. Disconnect the terminal equipment from the wall jack.
2. If the light emitting diode (LED) goes off, the terminal equipment is faulty and must be replaced. If the light emitting diode (LED) is still lit, find and repair the short circuit in the building wiring.
3. Reconnect the terminal equipment to the wall jack and re-test terminal equipment operation.

WARNING:
Important Safety Instructions follow.

When operating this equipment, basic safety precautions must be followed to reduce the risk of fire, electric shock and personal injury, including the following:

- Read and understand all instructions.
- Do not attach the power supply cord to building surfaces.
- For continued back-up protection and battery reliability, replace batteries every four years.
- Follow all warnings and instructions marked on the products.
- Clean products only with a dry rag.
- Do not use this product near water.
- For mounting security, follow all installation instructions when mounting product.
- Openings on top and bottom of power unit are provided for ventilation. Do not block or cover these openings. Do not exceed recommended environmental temperatures.
- Operate these products only from the type of power source indicated on the product labels.
- The power unit is equipped with a three wire grounding type plug; a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the grounding type plug.
- Do not allow anything to rest on or spill into the products.
- To reduce risk of fire and electrical shock, do not overload power outlets.

- Never push objects of any kind through the power supply or distribution unit slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.
- To reduce risk of electric shock, do not disassemble these products. Return them for repair when needed. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the products are subsequently used.
- Power down the power unit (see label on power unit on how to do this) and refer servicing under the following conditions:
  - — if liquid has been spilled into any of the products
  - — if any of the products have been exposed to water
  - — if any of the products do not operate normally
  - — if any of the products have been dropped or damaged
  - — if any of the products exhibits a change in performance.
- Do not attempt to recharge batteries on your own. The batteries may leak corrosive electrolyte or explode. The 1145B1 power unit recharges the batteries safely.
- Remove the batteries if the power unit will not be used for a long period of time (several months or more) since during this time the battery may leak.
- Discard discharged batteries as soon as possible. Discharged batteries are more likely to leak.
- Do not store batteries in high temperature areas. Batteries stored in a cold environment should be protected from condensation during storage and warming. Batteries should be stabilized at room temperature prior to use after cold storage. Do not install batteries if the manufacturing date on the label indicates that the batteries are more than six months old.

Install the MSP-1 Power Supply

Underwriter's Laboratories (UL) Information

The MSP-1 Power Supply has been tested and found to comply with the Underwriters Laboratories (UL) Standard Underwriter's Laboratories 1459, second edition. This standard requires that you be advised of certain safety instructions regarding the use of the power supply. These safety instructions follow the table of certifications.

Complies	Underwriter's Laboratories (UL) 1459
Certified	Canadian Safety Association (CSA) 22.2
Approved	IEC 950

Important Safety Instructions

The most careful attention has been devoted to safety standards in the manufacture of this power supply. Safety is a major factor in the design of every power supply. But, safety is *your* responsibility too.

Please read carefully the helpful tips listed below and on the next page. These suggestions will enable you to take full advantage of this product. Then, retain these tips for later use.

⚠ CAUTION:
When using this power supply, the following safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons.

- Read and understand all instructions.
- Follow all warnings and instructions marked on this power supply.
- This product can cause dangerous shock if immersed in water. To avoid the possibility of electrical shock, do not use near water.
- To reduce the risk of electric shock, do not disassemble this product. There are no user serviceable parts inside.
- This product should be operated only from the type of AC power source indicated on the label. If you are not sure of the type of AC power being provided, contact a qualified service person.
- Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
- Do not overload wall outlets and extension cords, as this can result in the risk of line or electric shock.
- Disconnect the cords on this product and refer servicing to qualified service personnel under the following conditions:
  - — When the power supply cord or plug is damaged or frayed.
  - — If liquid has been spilled into the product.
  - — If the product has been exposed to rain or water.
  - — If the product does not operate normally by following the operating instructions.
  - — If the product has been dropped or the housing has been damaged.
  - — If the product exhibits a distinct change in performance.

Description of the MSP-1 Power Supply

The MSP-1 (WP92464L1) Power Supply can be used to supply local power to Attendant Console 302B, Integrated Services Digital Network (ISDN) -T 75xx, and 85xx series telephones connected to an AT&T DEFINITY Communications System and to telephones needing auxiliary power for their vacuum fluorescent display. The MSP-1 can also supply auxiliary power to adjunct equipment such as the S201A and CS201A speaker phones or a 500A Headset Adapter attached to any currently manufactured analog, digital communications protocol, or Integrated Services Digital Network (ISDN)-T telephone equipped with an Adjunct jack.

CAUTION:
The MSP-1 Power Supply can be used only with telecommunications equipment, indoors, and in a controlled environment.

The MSP-1 Power Supply has a single output of -48VDC, 0.4 amperes, and can operate from either a 120 VAC 60 Hz Power source (105 to 129 VAC) or a 230 VAC 50 Hz Power source (198 to 264 VAC). Input voltage selection is automatic; that is, the power supply adjusts itself for the type of input voltage. The output capacity is 19.2 watts.

Locate the MSP-1 Power Supply

You may set the MSP-1 power supply on a flat surface such as a desk. Adhesive fastener strips are packed with the MSP-1. These are used to mount it on a vertical surface such as a wall.

CAUTION:
Do not locate the MSP-1 within six inches of the floor. Experience has proven that the MSP-1 will not survive the hazards of locating it near the floor.

Mount the MSP-1 Power Supply

The double-sided adhesive fastener strip allows you to mount the power supply on a flat vertical surface, such as on the wall or on the side of the desk.

Use the following procedure to mount the power supply near the telephone.

1. Locate a clean flat vertical surface on which to mount the power supply.
2. Peel the paper backing from one of the adhesive strips.
3. Firmly press the strip to the mounting surface. The fastener side of the strip should be directed outward.
4. Peel the paper backing from the remaining adhesive strip.

5. Place the adhesive side on the top of the MSP-1 and press the strip down so it adheres to the surface. Do *not* place the strip on the bottom of the power supply where the rubber feet are located.
6. Carefully align the fastener surface on the top of the power supply with the fastener surface on the wall or desk and press the two surfaces together firmly.

Connect the Power Supply

One power supply will support one telephone with or without an adjunct.

The maximum loop range between the telephone and the power supply is 250 feet (76 meters).

The power output is provided through 3 modular jacks on the power supply. These jacks are labelled as shown:

PHONE	OTHER	LINE
-7 +8	-2 +5	

The - and + numbers refer to the pins on which power is present and the polarity of that power.

The PHONE and LINE jacks are 8-pin female non-keyed 657-type jacks that can accept D4, D6, and D8 modular plug cables. The OTHER jack is a 6-pin female non-keyed 657-type jack.

The powering arrangements shown in the following figures can be used with the MSP-1 Power Supply.

- Figure 9-15 shows the local powering arrangement for Integrated Services Digital Network (ISDN) telephones, the Digital Communications Protocol (DCP) 7444 telephone voice frequency (VF) display, 84xx telephones, and adjuncts connected to all telephones except the 8102.
- Figure 9-16 shows the local powering arrangement for adjuncts connected to the 8102 telephone.

The type of cord(s) needed to make these connections are designated in each figure.

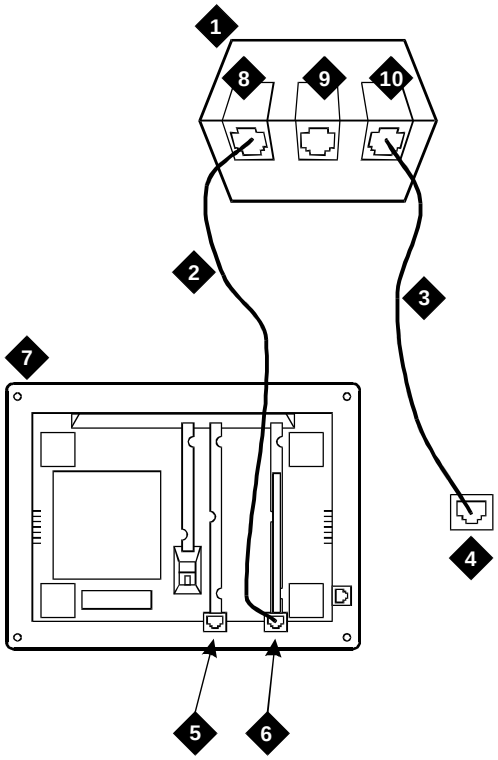


Figure Notes:

1. MSP-1 Power supply
2. D8W cord
3. D4BU cord (For analog telephones) or D8W cord (For Digital Communications Protocol (DCP) and Integrated Services Digital Network (ISDN-T) telephones)
4. Wall jack
5. Adjunct jack
6. Line jack
7. Bottom of Voice Terminal/Telephone (7444 Shown)
8. “PHONE” Jack
9. “OTHER” Jack
10. “LINE” Jack

Figure 9-15. MSP-1 Connections for -48V Powered Telephones and their Adjuncts (Except the 8102)

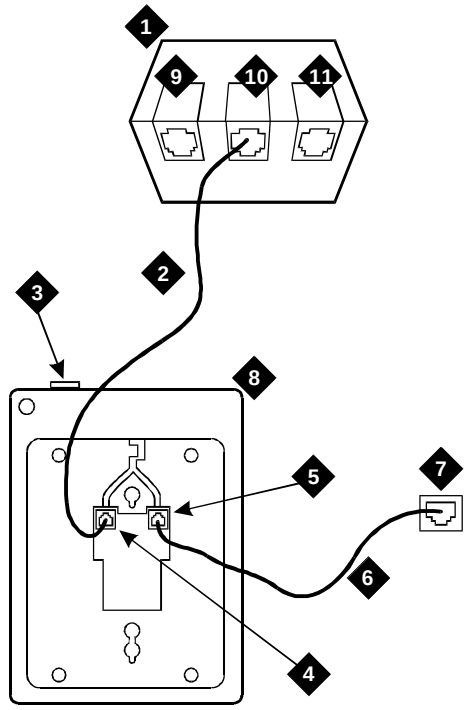


Figure Notes:

1. MSP-1 Power Supply
2. D4BU Cord
3. Adjunct jack (on rear of telephone)
4. Power Jack
5. Line Jack
6. D4BU Cord or 2-Wire Cord
7. Wall Jack
8. Bottom of 8102 Telephone
9. “PHONE Jack
10. “OTHER” JAck
11. “LINE” Jack

Figure 9-16. MSP-1 Connections for Adjuncts Connected to the 8102 Analog Telephone

Install the Basic Rate Interface (BRI) Terminating Resistor

A terminating resistor is always required when the Basic Rate Interface (BRI) T-type interface card (TN556 circuit pack) is used (see *#5ESS Switch Integrated Services Digital Network Customer Premises Planning Guide Issue 7,* 533-700-100.

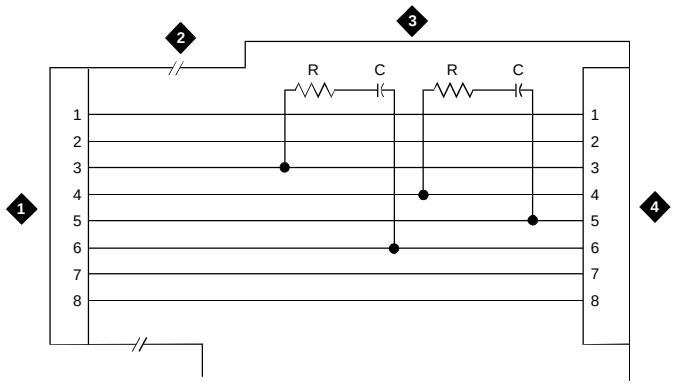
The resistors balance the cable plant between the receiver and the transmitter on the T-type interface. The resistor is built into the NT1 and can be one of three values, depending on the configuration and the distance from the NT1 to the Integrated Services Digital Network (ISDN) terminal. The resistor value is controlled from the NT1. In some cases, a terminating resistor (TR) adapter is needed and can be placed in the satellite closet or work location.

NOTE:
The 440A4 terminating resistor and 110RA1-12 terminating resistor block are Underwriters Laboratories (UL) listed. Most new installations will be of the 110RA1-12 terminating resistor block. The following installation instructions should be observed and heeded when installing a terminating resistor (TR) or any telephone equipment.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Terminating Resistor Adapter

Figure 9-17 shows an 8-pin 440A4 terminating resistor (TR) adapter. The adapter is three inches long with plugs at both ends and a short cord to connect the 8-conductor jack. When is connected, a small screwdriver is needed for removal.



1. 8-Wide Plug
2. Cord
3. Plastic Housing
4. 8-Wide Jack

Figure 9-17. 8-Pin Terminating Resistor Adapter (440A4)

Closet Mounted (110RA1-12)

The 110RA1-12 terminating resistor block is designed to mount in the telecommunications wire closet. It consists of 12 (2-pair) circuits and provides the 100 Ohm termination used for Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) circuits. Figure 9-18 shows the wiring of the 110RA1-12. Three rows of 110D-4 connector blocks are mounted on a printed wire board along with circuit resistors and capacitors. The bottom row is designated as the input row and the top and middle rows are designated as the output rows. The circuit assembly is mounted on a standard 110A-100 pair mounting base. The 110RA1-12 is shipped with preprinted designation strips to simplify circuit identification and installation.

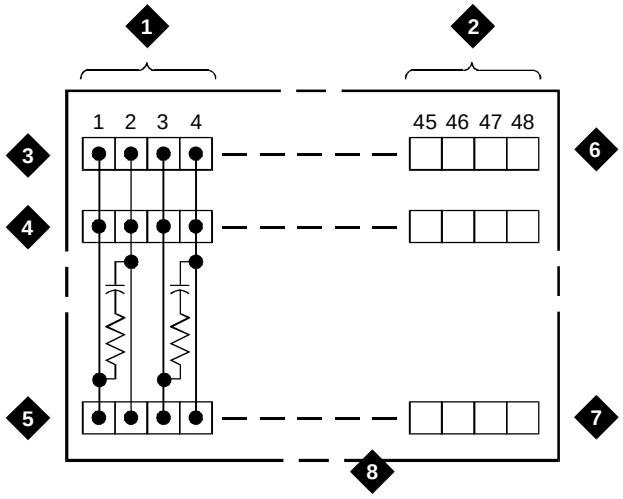


Figure Notes:

1. Circuit 1
2. Circuit 2
3. Output row “A”
4. Output row “B”
5. Input row “C”
6. Only first circuit shown to all 12 circuits (2APR) per block
7. 110D-4 connector block
8. Printed circuit board mounted on standard 110A, 100APR block

Figure 9-18. Terminating Resistor Block (110RA1-12)

Figure 9-19 shows the wiring connections for the 110RA1-12 terminal block. The TN556 Basic Rate Interface (BRI) switch port is terminated to the bottom row C.

For point-to-point applications, the top row is connected to the blue station field. Notice the pair connects from the 110RA1-12 to the standard 4-pair circuit. Pair 1 from the 110RA1-12 is connected to Pair 1 of the station field, and Pair 2 is connected to Pair 3 of the station field.

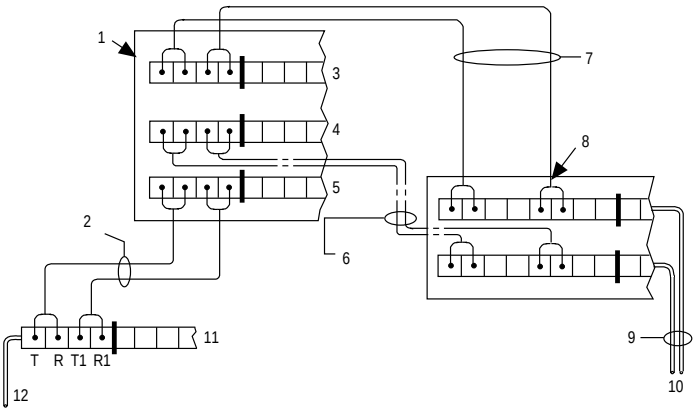


Figure Notes:

1. Part terminating resistor block
2. 2-pair cross-connect
3. Row “A”
4. Row “B”
5. Row “C”
6. Basic multipoint option
7. 2-pair cross-connect
8. Part of 4-pair blue field
9. 4-pair horizontal cables
10. To Integrated Services Digital Network (ISDN) S/T-interface terminals
11. White or purple field
12. From Integrated Services Digital Network (ISDN) T-interface circuit (2-pair)

Figure 9-19. Typical Installation of Terminating Resistor Block (110RA1-12)

Two terminal Basic Multipoint applications are accommodated by connecting row B (output) to the second terminal common to the multipoint circuit.

Install Multipoint Adapters

Multipoint Adapters are used to provide signal fan-out of the T-interface. Fan-out can be performed at the work station by the BR851-B or the 367A. These adapters support more than one Integrated Services Digital Network (ISDN) terminal per horizontal 4-pair D-Inside Wire (DIW). To support multiple horizontal runs, fan-out must be performed in the satellite closet by a cross-connected field with multiple common rows (or blades).

The 110RA1-12 provides fan-out for two horizontal runs and also contains the 100 Ohm terminating resistor. This can be used for Basic Multipoint or point-to-point with terminating resistor in the closet. Other fan-out blocks include the 110AB1-025M and the 110AB1-050M.

BR851-B Adapter (T-Adapter)

The BR851-B supports two terminals on one multipoint Basic Rate Interface (BRI) at the workstation. It is a T-shaped device used to fan-out transmission and power. The BR851-B is an 8-position device with a single plug and two jacks. Figure 9-20 shows the wiring diagram of the BR851-B.

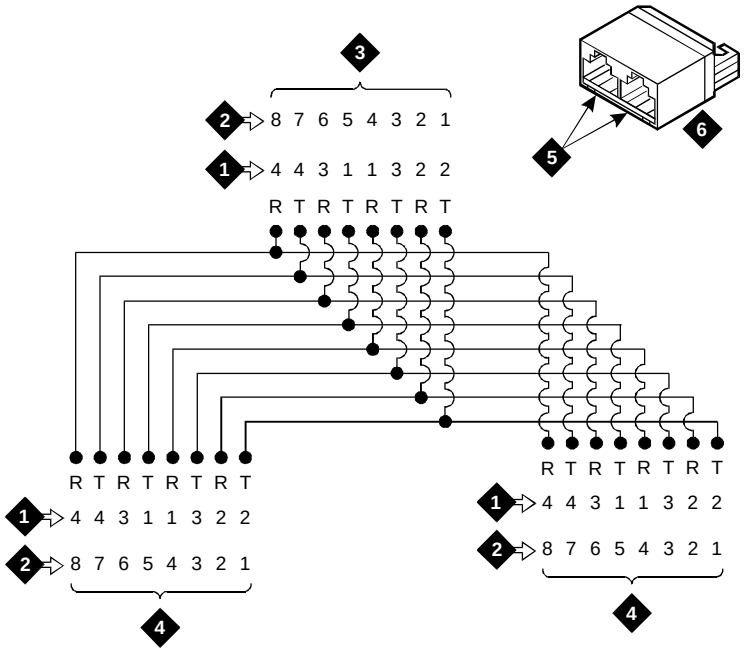


Figure Notes:

1. Wire Pairs
2. Pin Numbers
3. Modular Plug (Male)
4. Female
5. Two 8-pin Modular Jacks
6. T-Type Adapter

Figure 9-20. Diagram of BR851-B

367A Adapter

The 367A Adapter (Figure 9-21) provides fan-out for up to seven terminals. The 367A is an 8-conductor adapter and is used at the work location for bridging three to seven terminals. Order D8W cord for input when using the 367A. It can be adhesive mounted or screw mounted.

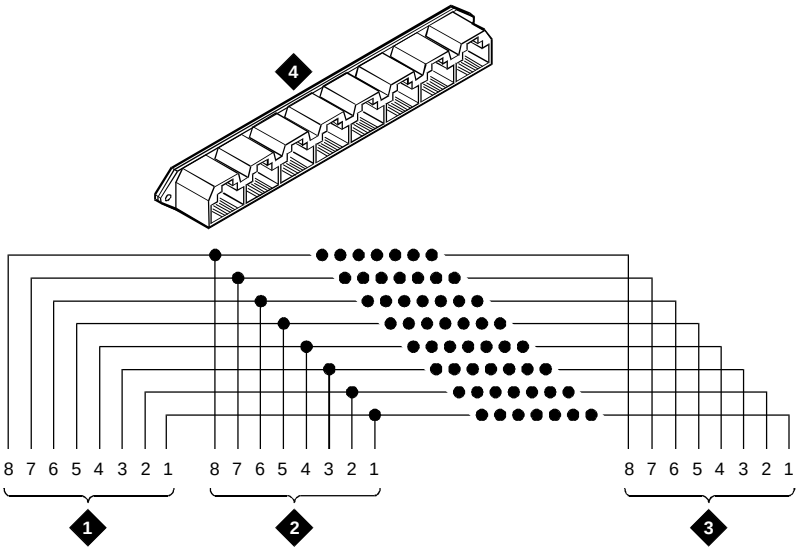


Figure Notes:

1. Jack 1
2. Jack 2
3. Jack 8
4. 367A Adapter

Figure 9-21. Diagram of 367A

Basic Multipoint Installation Distances

Figure 9-22, Table 9-11 and Table 9-12 provide cabling distances for fan-out of Integrated Services Digital Network Basic Rate Interface (ISDN-BRI) multipoint installations. Cabling distances are abbreviated in the figure as follows:

Table 9-10. Cabling Distances for Figure 9-22

Abbreviation	Description
A	Distance from the T-interface source to the work location
B	Distance from the closet to the work location
C	Less than 33 feet (10 meters) of cord

In Table 9-10, the terminating resistor (TR) is located in the closet. All distances assume 24-gauge D-Inside Wire (DIW).

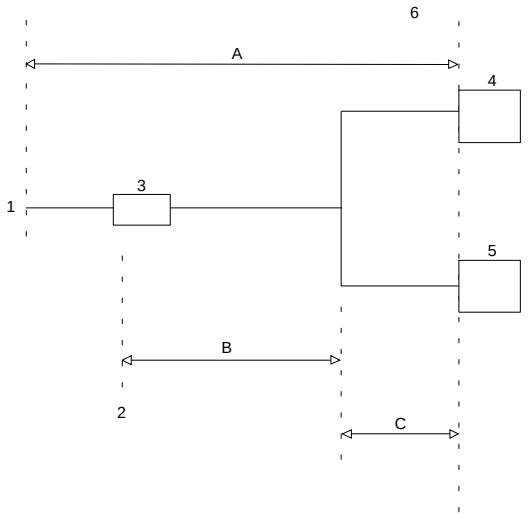


Figure Notes:

1. T-interface source (TN556)
2. Satellite closet
3. Terminating Resistor
4. TE1
5. TE2
6. Work location

A The distance from T-interface source to work location

B Distance from closet to work location

C Less than 33 feet (10 m) of cord

Figure 9-22. Basic Multipoint with One Work Location

Table 9-11 shows basic multipoint cabling distances for terminals.

Table 9-11. Basic Multipoint Cabling Distances

NUMBER OF TERMINALS	A	C
2	1900 ft (579 m)	33 ft (10 m)

Table 9-12 shows basic multipoint cabling distances to use when the resistor is in a closet.

Table 9-12. Basic Multipoint Cabling Distances (Resistor in Closet)

NUMBER OF TERMINALS	A	B	C
2	1600 ft (488 m)	250 ft (76 m)	33 ft (10 m)

Install Power Adapters

The T-type adapters contain one modular plug and two modular jacks. The piggyback arrangement allows for insertion into adjacent jacks in manifold-type jack arrangements. The 400B2 and 400F2 are power adapters. Figure 9-23 shows the side-by-side adapters.

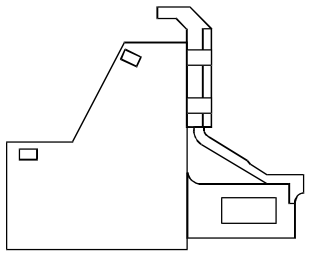


Figure 9-23. Side View of Adapter

400B2

This piggyback adapter (Figure 9-24) provides power from the KS-22911 to PR4 of the T-interface or American National Standards Institute (ANSI) U-interface. It consists of the following:

- One 8-position, 6-conductor plug
- One 8-position, 8-conductor jack
- One 6-position, 2-conductor jack

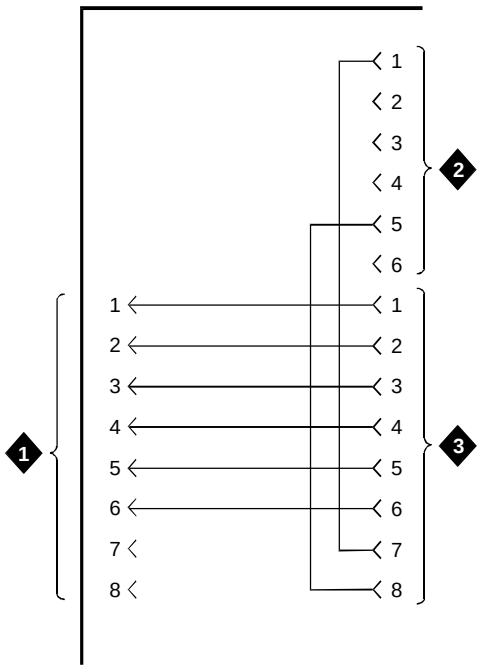


Figure Notes:

1. To Private Branch Exchange (PBX)
2. To Power Supply
3. To Telephone Station Set

Figure 9-24. Diagram of 400B2 Adapter

400F2

This piggyback adapter (Figure 9-25) provides auxiliary power from the KS-22911 to PR3 of the Alternate Mark Inversion (AMI) U-Interface. It consists of the following:

- One 8-position, 7-conductor modular plug
- One 8-position, 8-conductor jack
- One 6-position, 2-conductor jack

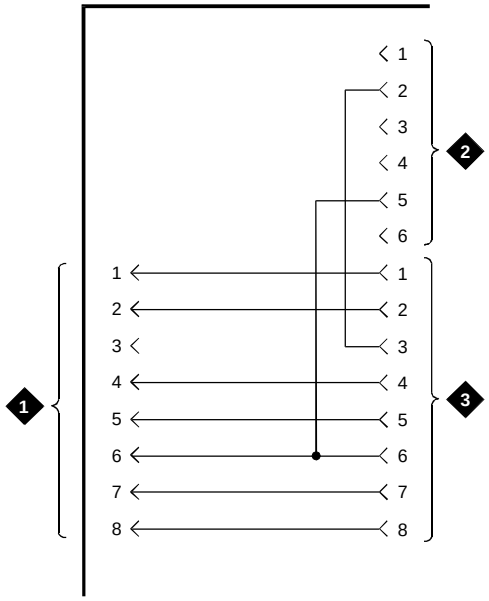


Figure Notes:

1. To Private Branch Exchange (PBX)
2. To Power Supply
3. To Telephone Station Set

Figure 9-25. Diagram of 400F2 Adapter

Install Auxiliary Equipment

This section describes how to install auxiliary equipment that may be used with the DEFINITY System Generic 3 switch.

Auxiliary Equipment Description

The following optional equipment is available for use with the system.

- Processor Data Modules (PDMs) — Provide an interface to the following:
  - — AUDIX
  - — Call Management System (CMS)
  - — Distributed Communications System (DCS)
  - — Property Management System (PMS)
  - — Customer-provided terminals and computers

— Station Message Detailed Recording (SMDR)

- Asynchronous Data Units (ADU)— Provide an interface between the system data line circuit pack and the customer's asynchronous data terminals and host computers. Asynchronous Data Units (ADU) can also be used to provide an interface to the Property Management System (PMS) or Station Message Detail Recording (SMDR) equipment.

Install Loudspeaker Paging and Music-on-Hold

The Loudspeaker Paging feature provides a connection from the TN763B/C/D auxiliary trunk to a customer-provided paging amplifier. Other Auxiliary-Trunk circuit packs may be required in some countries. All attendants and telephone users have access to the voice paging equipment.

The Music-on-Hold feature provides a connection from the analog line (TN2183) or auxiliary trunk (TN763) to a customer-provided music source. Other Auxiliary-Trunk circuit packs may be required in some countries. If music-on-hold is administered, all calls on hold, waiting in a queue, or parked receive music to let the waiting party know the connection is still in active.

Install Loudspeaker Paging Access without Paging Adapter

Requirements

Figure 9-26 shows the connections for the Loudspeaker Paging feature. These connections are used when the loudspeaker interface equipment is not located in the equipment room. If the loudspeaker interface equipment is located in the equipment room, the connections do not have to be routed through the wall jack. The connections are for one zone. Repeat connections for each paging zone.

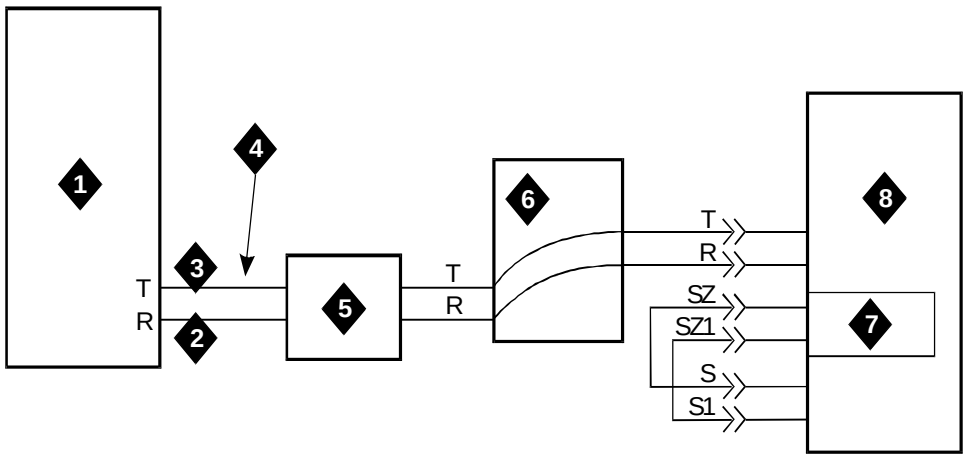


Figure Notes:

1. Loudspeaker system
2. Green
3. Red
4. 4-pair line cord
5. 103A or wall jack
6. Cross connect field
7. Auxiliary Trunk (TN763 circuit pack)
8. Generic 3 Cabinet

Figure 9-26. Connections for Loudspeaker Paging without Universal Coupler

Install Loudspeaker Paging Access

Install loudspeaker paging access as follows:

1. Determine port assignment of paging zone(s) from Loudspeaker Paging Form:

EXAMPLE: Port Number	2	B	02	01
	Cabinet	Carrier	Slot	Circuit

2. Connect as shown in Figure 9-26.

Refer to Table 9-9 on page 9-17 for pinout information.

Install Music-on-Hold Access

Requirements

An information outlet provides access to the music source. If the music source is Federal Communications Commission (FCC) registered, the switch side of the cross-connect field is connected directly to the switch cabinet.

If the music source is not Federal Communications Commission (FCC) registered to meet United States requirements, the switch side of the cross-connect field is connected to a 909A/B universal coupler. The 909A/B universal coupler is mounted in an auxiliary cabinet, if one is available.

If an auxiliary cabinet is not available, a connectorized wiring block must be locally engineered to replace the auxiliary cabinet ED-1E443-10 intra-connection panel.

The switch side of the cross-connect field is connected by the T and R leads to a TN763B/C/D auxiliary trunk circuit pack located in a port carrier. Other Auxiliary-Trunk circuit packs may be required in some countries.

Figure 9-27 shows the connections for the Music-on-Hold feature when the loudspeaker equipment is Federal Communications Commission (FCC) registered. Figure 9-28 shows the connections for the Music-on-Hold feature when the loudspeaker equipment is not Federal Communications Commission (FCC) registered.

The connections shown in Figure 9-27 and Figure 9-28 are used when the music source is not located in the equipment room. If the music source is located in the equipment room, the connections do not have to be routed through the cross-connect field.

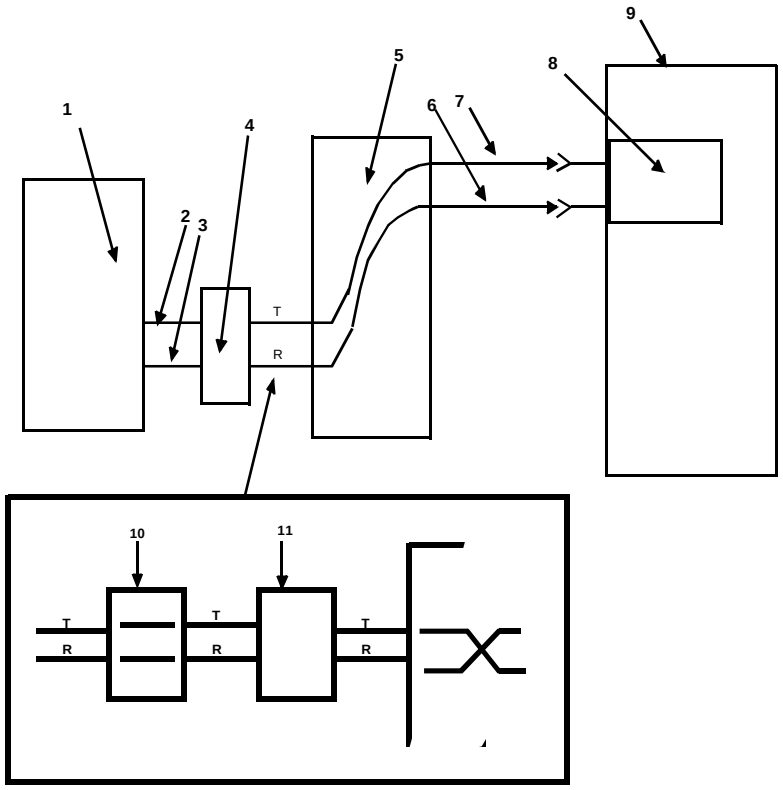


Figure Notes:

1. Dial Dictation Equipment or music Source
2. Red (R)
3. Green (T)
4. 103A or Wall Jack
5. Cross-Connect Field
6. R
7. T
8. Analog Line Circuit Pack (TN2183)
9. Generic 3i Cabinet
10. Cross-Connect Field
11. 122A Music Adapter

Figure 9-27. Music-on-Hold/Dial Dictation, Federal Communications Commission (FCC) Registered Equipment (Auxiliary Access)

Install Federal Communications Commission (FCC) Registered Music Source

To install Federal Communications Commission (FCC) registered music source:

1. Determine music feature port assignment from Feature-Related System Parameters Form:

EXAMPLE: Port Number	2	B	02	01
	Cabinet	Carrier	Slot	Circuit

2. Connect as shown Figure 9-27.

Install Recorded Announcement Equipment

This section describes how to install Recorded Announcement equipment.

Requirements

Recorded Announcement is available from external equipment, or internally from TN-750-type circuit packs. Connect external equipment as shown in Figure 9-28.

NOTE:
To get the benefit of battery holdover for the TN750B circuit pack, install it in an Expansion Port Network (EPN) carrier position A.

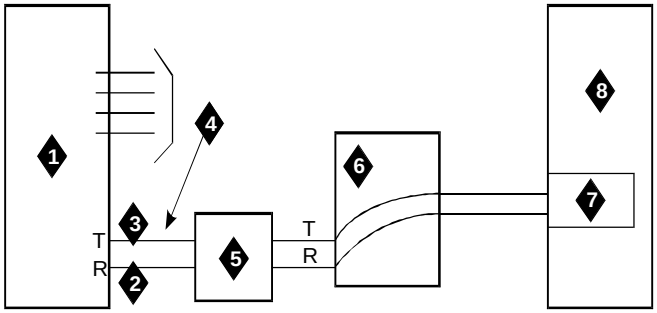


Figure Notes:

1. Recorded Announcement
2. Green
3. Red
4. Line cord
5. 103A or wall jack
6. Cross-connect field
7. Analog Line (TN2183) or Auxiliary Trunk (TN763)
8. Generic 3 Cabinet

Figure 9-28. Connections for non- Federal Communications Commission (FCC) Registered Recorded Announcement/Dial Dictation (Analog Access)

Install Processor Data Modules (PDMs)

Requirements

The interface between the system and many types of data equipment is provided by a TN754B digital line circuit pack connected to a Processor Data Module (PDM). Other digital-line circuit packs may be required in some countries. The following types of data equipment can be connected by a Processor Data Module (PDM):

- AUDIX/Adjunct
- AUDIX/Terminal
- Call Management System (CMS)
- Distributed Communications System (DCS)
- Property Management System (PMS)
- Journal Printer
- Customer-provided terminals and host computers
- Station message detail recording (SMDR)/ Call Detail Recording (CDR)

Processor Data Modules (PDMs) are connected to TN754B digital line circuit packs and are mounted individually or in a 71A data mounting. Other digital-line circuit packs may be required in some countries. Each 71A data mounting can contain up to eight modules. This document contains only the information required to connect the modules to the switch. Module installation and testing information is contained in *AT&T System 75 User's Guide—Processor Data Module*, 999-700-028.

The data mounting is connected by an A25D/B25A cable through the cross-connect field to a TN754B digital line circuit pack. The modules can also be mounted and connected individually through the cross-connect field.

Installation

Connection to Data Mounting

1. From the Data Module Form, determine port assignment of the processor data modules (PDMs):

EXAMPLE: Port Number	2	B	02	01
	Cabinet	Carrier	Slot	Circuit

2. Connect an A25D or B25A cable to the **DIGITAL COMMUNICATIONS PROTOCOL-LINE** connector on the rear of the data mounting.
3. Route the cable from the data mounting to the station side of the cross-connect field.
4. Write the lead designations on the connecting block with a felt-tipped pen.
5. Connect patch cords/jumper wires at cross-connect field (Figure 5-1).
6. Administer according to the instructions in the following United States. English book:
   - *DEFINITY Communications System Generic 3 Implementation*, 555-230-655

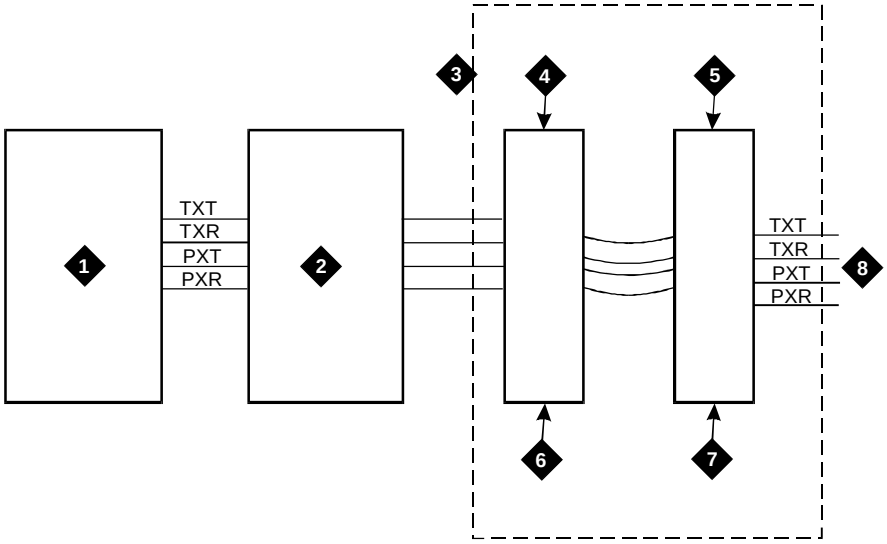


Figure Notes:

1. Processor Data Module
2. Part of 25-pair connector in 71A multiple data mounting
3. Cross-connect field
4. Station side
5. Switch side
6. Yellow field
7. Purple field
8. Digital line circuit pack (TN754)

Figure 9-29. Connections for Processor Data Modules (PDMs) in Data Mounting

Connection to Individual Processor Data Modules (PDMs)

1. Determine port assignment of the Processor Data Module (PDM) from the Data Module Form:

EXAMPLE: Port Number	2	B	02	01
	Cabinet	Carrier	Slot	Circuit

2. Install the module per instructions in *AT&T System 75 User's Guide—Processor Data Module*, 999-700-028.
3. Install patch cord/jumper wires at cross-connect field.

4. Administer according to the instructions in the following United States English book:
   - *DEFINITY Communications System Generic 3 V2 Implementation*, 555-230-655

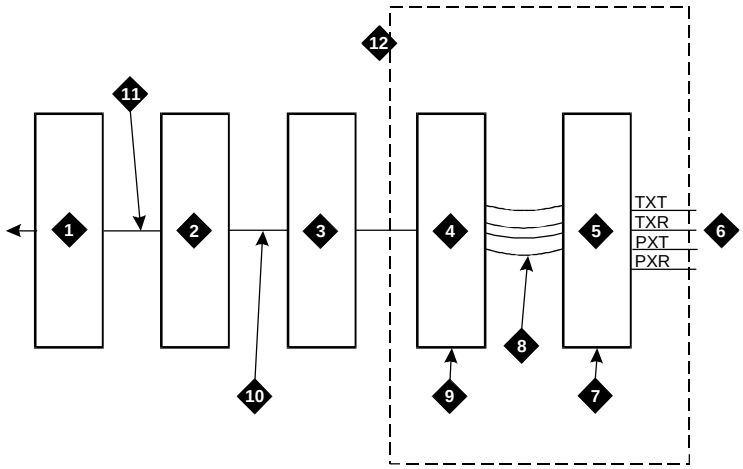


Figure Notes:

1. Z3A1 or Z3A2 Asynchronous Data Unit (ADU)
2. Information outlet
3. Satellite site, or adapter location
4. Station side and blue or white field
5. Switch side and purple field
6. Blue or white field
7. Purple field
8. Cross-connect field
9. Digital line circuit pack (TN754)
   - Other digital-line circuit packs may be used in some countries.

Figure 9-30. Connections for Individual Processor Data Modules (PDM)

Install Call Management System (CMS) Interface

The interface between the switch and the Call Management System (CMS) is through Processor Data Modules (PDMs). The DEFINITY System G3i uses the processor interface (TN765) as the required control circuit pack.

Connections between the Call Management System (CMS) interface and the switch are covered in "Install Processor Data Modules (PDMs)" on page 9-55.

Information for connecting the Processor Data Modules (PDMs) to the Call Management System (CMS) and setting the Processor Data Module (PDM)

option switches is contained in the *3B2 Messaging Server Installation and Maintenance Service Manual*, 585-205-110.

The Call Management System (CMS) connection is illustrated below.

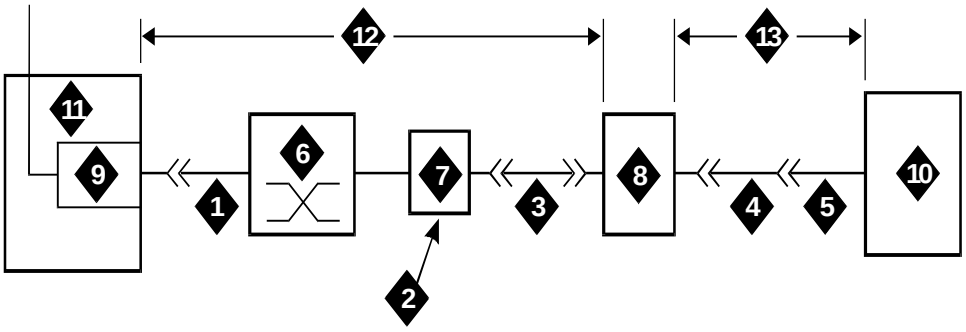


Figure Notes:

1. B25A
2. See PS6
3. DSW-87
4. M25B
5. See note 3
6. Cross-connect field
7. 103A or wall jack
8. Modular Processor Data Module (MPDM)
9. TN754 circuit pack
10. CMSAG 6386 PC
11. Generic 3i
12. 5000 Feet (1524 Meters)
13. 50 Feet (15 Meters)

Figure 9-31. Typical Call Management System (CMS) Connections to DEFINITY System G3i Using Mode Conversion

Install Property Management System (PMS) Interface

This section describes how to install the Property Management System (PMS) interface.

Requirements

The interface between the switch and the customers Property Management System (PMS) can be through Processor Data Modules (PDMs). Such connection is covered in "Install Processor Data Modules (PDMs)" on page 9-55.

Refer to the vendor's documentation for connecting to the Property Management System (PMS). The option switches on the Processor Data Module (PDM) must be set in accordance with the requirements for the customers Property Management System (PMS).

A journal printer can be used. The connections for the printer are the same as for the Property Management System (PMS). Refer to the vendor's documentation for connecting the Processor Data Modules (PDMs) to the printer and for setting the option switches. The switches must be set according to the requirements for the printer.

The Property Management System (PMS) interface and the journal printers can be installed using Asynchronous Data Unit (ADUs). The connections are the same as for a customer-provided data terminal (Figure 9-32 on page 9-61).

Connections to a G3i switch can be switched connections through an Asynchronous Data Unit (ADU), through a modem or through the 7400A/B or 7500 data modules.+

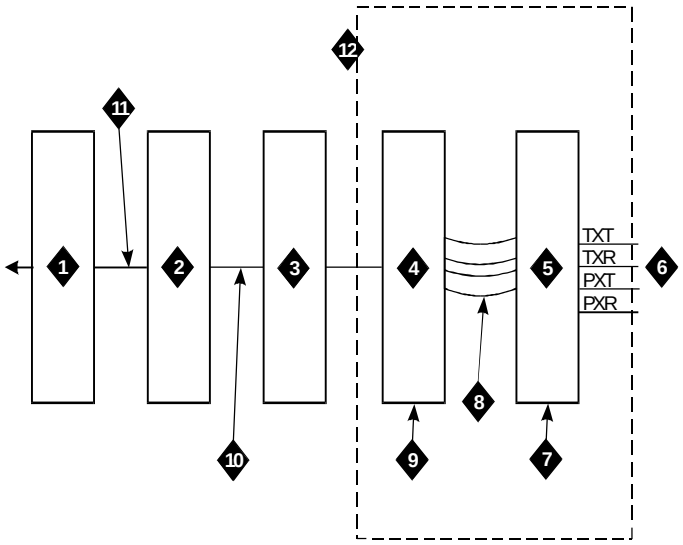


Figure Notes:

1. Processor Data Module PDM)
2. Information outlet
3. Satellite site, or adapter location
4. Station side
5. Switch side
6. Digital Line Circuit Pack (TN754)
7. Purple field
8. Patch cord or jumpers
9. Blue or white field
10. Four pair line cord
11. Four pair line cord
12. Part of Cross-connect field

■ Other data-line circuit packs may be used in some countries.

Figure 9-32. Connections to Asynchronous Data Unit (ADU) for Data Terminal Equipment (DTE)

Install Customer-Provided Terminal Using Asynchronous Data Unit (ADU)

Requirements

The interface between the switch and the customer's data terminals and host computer can be through Processor Data Modules (PDMs). Refer to section on installing Processor Data Modules (PDMs) for details.

Asynchronous data terminals, however, can be connected through a Z3A Asynchronous Data Unit (ADU) to a TN726B data line circuit pack (Figure 9-32). Normally, the data unit is powered from the connected data terminal. The data unit can also be remotely or locally powered using a 2012D transformer equipped with a 248B adapter. Data units connected to receive-only printers always require external power. The need for external power must be determined experimentally for data units connected to other devices. For more information on data unit installation, refer to the *Z3A Asynchronous Data Unit User's Manual*, 555-401-701.

Installation

1. Determine data unit port assignment from Data Module Form:

EXAMPLE: Port Number	2	B	02	01
	Cabinet	Carrier	Slot	Circuit

2. Connect the RS-232 plug on the data unit to the data terminal.

3. Refer to Figure 9-32 for an illustration.

Install Station Message Detail Recording (SMDR)/Call Detail Recording Unit (CDRU) Interface

The interface between the switch and Station Message Detail Recording (SMDR) can be through a Processor Data Module (PDM), Trunk Data Module (TDM), or 212-type modem.

For connections between the switch and the Processor Data Module (PDM) or Trunk Data Module (TDM), refer to the section on installing Processor Data Modules (PDMs).

The connection between the switch and the 212-type modem is the same as for external ringing (Figure 9-11). When a 212-type modem is used, an external pooled modem circuit pack must be provided. One of the pooled modem's conversion resources is dedicated to the Station Message Detail Recording (SMDR) output device.

Connections between the G3i switch and an Asynchronous Data Unit (ADU) or data module are the same as for remote administration devices such as the Generic 3 Management Terminal (G3MT). These connections are shown in Figure 9-32 and Figure 9-33. All such connections require the mode 2 to mode 3 conversion resource shown in these figures.

Administer your connections as described in *DEFINITY Communications System Generic 3 V2 Implementation*, 555-230-655.

A TN726B data line circuit pack may also be used. If so, Processor Data Modules (PDMs), Trunk Data Modules (TDMs), or 212-type modems are not required for the data terminal equipment (DTE). Connections between the switch and the Station Message Detail Recording (SMDR) output receiving device is the same as a customer-provided data terminal (Figure 9-33).

The Station Message Detail Recording (SMDR) output device can be connected directly to the data communications equipment (DCE) connector on the rear of the control carrier. This connection is made using a RS-232 cable. A Processor Data Module (PDM) or Trunk Data Module (TDM), modem, or Asynchronous Data Unit (ADU) is required.

Interface Cabling to Station Message Detail Recording (SMDR) Output Device

Figure 9-33 shows the cabling required to connect the TELESEER unit, printer, or customer-provided data terminal equipment (DTE) for an AC-powered single-carrier cabinet. The M25B/RS-232 cable connects to the **PI** connector on the TELESEER unit.

CAUTION:
All peripherals connected to a DC-powered switch through the asynchronous Electronic Industries Association (EIA) RS-232 data terminal equipment interface on the Processor Port Network (PPN) A or B carrier or the Expansion Port Network (EPN) maintenance circuit pack require an Electronic Industries Association (EIA) 116A ground isolator. Plug the 116A ground isolator into the RS-232 interface connector (labelled DTE on the back of cabinet). The cable from the peripheral equipment is then plugged into the opto-isolator. Figure 9-33 shows the connections for a DC-powered single-carrier cabinet.

The apparatus code for the isolator is 116A ground isolator and the AT&T Comcode is 106005242.

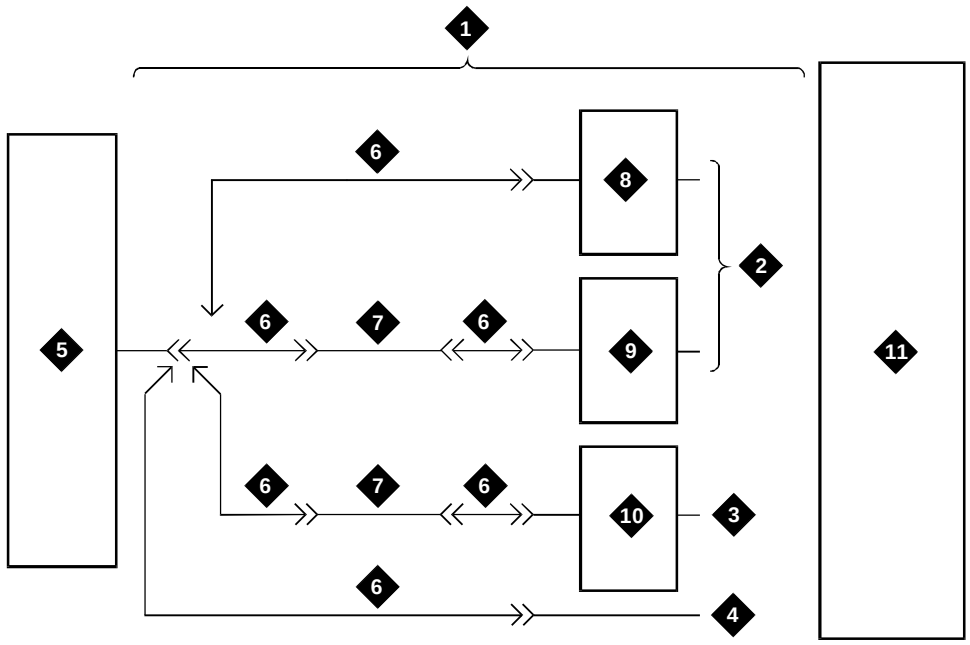


Figure Notes:

1. 25-pin RS232 cable
2. Digital line circuit pack (TN754)
3. Analog line circuit pack TN746)
4. RS232 data terminal equipment (DTE) connector on back of cabinet
5. 94A local storage unit (LSU) or Printer, or customer-provided data communications equipment (DCE)
6. M25B
7. M10M null modem
8. Trunk data module (TDM)
9. Processor Data Module (PDM)
10. Modem
11. Generic 3i

Figure 9-33. Station Message Detail Recording (SMDR) Cabling for On-Premises Data Communications Equipment (DCE) from AC Powered Single-Carrier Cabinet

Figure 9-34 shows the connections for a remote host connected by a private line.

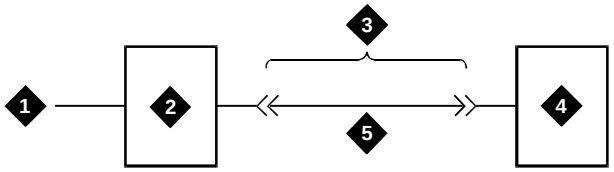


Figure Notes:

1. Analog Line or Central Office (CO) Trunk
2. Modem or Digital Service Unit (DSU)
3. 25-Pin Cable
4. Trunk Data Module (TDM)
5. M25B Cable

Figure 9-34. Station Message Detail Recording (SMDR) Cabling for Remote Host

Switch Settings for Processor Data Module (PDM), Trunk Data Module (TDM), or 212-Type Modem

Set the option switches for the Processor Data Module (PDM) and the Trunk Data Module (TDM) as follows:

Switch	Setting
SELF TEST	OFF
LOC LOOP/REM LOOP	OFF
1200	ON
AANS (Processor Data Module (PDM) Only)	ON
SIGLS	ON
PRTY	ON
1/0D	ON
All Others	OFF

212-Type Modem Switch Setting

Set the option switches for the 212-type modem as follows:

Switch	Setting
AL	OFF
ST	OFF
RDL	OFF
DL	OFF
HS	ON

Implement and Administer System Data

After the hardware is installed and the system is activated, the data for system and telephone features can be administered. The implementation procedures are provided in the United States English book, *DEFINITY Communications System Generic 3 Implementation*, 555-230-655.

NOTE:
For easier reference, installation steps and test steps are grouped in separate chapters. It may be more efficient to install each hardware component, administer it, and then test it before going on to install another component. As an example, install the attendant console using the procedures in Chapter 9, "Install and Wire Telephones and Other Equipment", administer it using the procedures in the book listed above, and test it using the procedures in Chapter 10, "Test Telephones and Other Equipment".

Test Telephones and Other Equipment

10

This chapter describes how to test the telephones and other equipment. The following tests are included in this chapter:

1. Make test calls (single-cabinet switch)
2. Make test calls (two-cabinet switch)
3. Make test calls (three-cabinet switch)
4. Test the attendant console
5. Test the selector console
6. Test External Ringing
7. Test Queue Warning Indicator
8. Test Integrated Announcement
9. Test Music-on-Hold
10. Test Emergency Transfer
11. Test remote access interface (known as Initialization and Administration System (INADS))
12. Test Basic Rate Interface (BRI)

NOTE:
The tests in this chapter are performed after the equipment has been wired to the switch and after the customer's data for that equipment has been administered.

For easier reference, installation steps and test steps are grouped in separate chapters. It may be more efficient to install each hardware component, administer it, and then test it before going on to install another component. As an example, install the attendant console using the procedures in *Chapter 9, "Install*

and Wire Telephones and Other Equipment", administer it using the procedures in the United States English book, *DEFINITY Communications System Generic 3 Implementation,* 555-230-655, and test it using the procedures in this chapter.

The following tests are acceptance tests or sanity tests and they provide some assurance the system will perform properly after installation and administration. If problems occur or more extensive or specific tests are required, refer to the United States English book, *DEFINITY Communications System Generic 1 and Generic 3i/s/vs Maintenance*, 555-204-105.

Make Test Calls (Single-Cabinet Switch)

Description

Make two calls from one telephone to another telephone. Make the first call by dialing a telephone and make the second call by dialing a trunk access code and a listed directory number (LDN).

Procedure

1. Select a working telephone and pick up the receiver. Dial tone is heard.
2. Dial the extension number of another working telephone. Ringback is heard through the earpiece of the test telephone.
3. Answer the call at the called telephone. The conversation must be satisfactory.
4. Hang up both telephones.
5. At the test telephone, pick up the receiver. Dial tone is heard.
6. Dial the trunk access code. Dial tone is heard.
7. Dial a listed directory number (LDN) for a working telephone. Ringback is heard through the earpiece of the test telephone.
8. At the called telephone, answer the call. The conversation must be satisfactory.
9. Hang up both telephone.

Make Test Calls (Two-Cabinet Switch)

Description

To test a two-cabinet switch, you will make the following calls:

- Make a call from a telephone associated with a line port in the Processor Port Network (PPN) to a telephone associated with another line port in the Processor Port Network (PPN).
- Make a call from a telephone associated with a line port in the Processor Port Network (PPN) to a telephone associated with a line port in the Expansion Port Network (EPN).
- Make a call from a telephone associated with a line port in the Processor Port Network (PPN) to a listed directory number (LDN).
- Make a call from a telephone associated with a line port in the Expansion Port Network (EPN) to a telephone associated with a line port in the Expansion Port Network (EPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network (EPN) to a associated with a line port in the Processor Port Network (PPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network (EPN) to a listed directory number (LDN).

Procedure

1. Select a working telephone associated with a line port in the Processor Port Network (PPN) as the test telephone and lift the receiver. Dial tone is heard.
2. Dial the extension number of a working telephone associated with a line port in the Processor Port Network (PPN). Ringback is heard through the earpiece of the test telephone.
3. At the called telephone, answer the call. Conversation must be satisfactory.
4. Hang up both telephones.
5. At the test telephone, lift the receiver.
6. Dial the extension number of a working telephone associated with a line port in the Expansion Port Network. Ringback is heard through the earpiece of the test telephone.
7. At the called telephone, answer the call. Conversation must be satisfactory.
8. Hang up both telephones.
9. At the test telephone, lift the receiver. Dial tone is heard.

10. Dial the trunk access code. Dial tone is heard.
11. Dial a listed directory number (LDN) for a working telephone. Ringback is heard through the earpiece of the test telephone.
12. At the called telephone, pick up the receiver. Conversation must be satisfactory.
13. Hang up both telephones.
14. Select a working telephone associated with a line port in the Expansion Port Network (EPN) as the test telephone and lift the receiver. Dial tone is heard.
15. Dial the extension number of a working telephone associated with a line port in the Expansion Port Network (EPN) cabinet. Ringback is heard through the earpiece of the test telephone.
16. At the called telephone, answer the call. Conversation must be satisfactory.
17. Hang up both telephones.
18. At the test telephone, pick up the receiver.
19. Dial the extension number of a working telephone associated with a line port in the Processor Port Network (PPN). Ringback is heard through the earpiece of the test telephone.
20. At the called telephone, pick up the receiver. Conversation is satisfactory; hang up the receiver at both telephones.
21. At the test telephone, pick up the receiver. Dial tone is heard.
22. Dial the trunk access code. Dial tone is heard.
23. Dial the listed directory number (LDN) for a working telephone. Ringback is heard through the earpiece of the test telephone.
24. At the called telephone, pick up the receiver. Conversation must be satisfactory.
25. Hang up both telephones.

Make Test Calls (Three-Cabinet Switch)

Description

To test a three-cabinet switch, make the following calls:

- Make a call from a telephone associated with a line port in the Processor Port Network (PPN) to a telephone associated with a line port in the Processor Port Network (PPN) .

- Make a call from a telephone associated with a line port in the Processor Port Network (PPN) to a telephone associated with a line port in the Expansion Port Network1 (EPN).
- Make a call from a telephone associated with a line port in the Processor Port Network (PPN) to a telephone associated with a line port in the Expansion Port Network2 (EPN).
- Make a call from a telephone associated with a line port in the Processor Port Network (PPN) to a listed directory number (LDN).
- Make a call from a telephone associated with a line port in the Expansion Port Network1 (EPN) to a telephone associated with a line port in the Expansion Port Network1 (EPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network1 (EPN) to a telephone associated with a line port in the Expansion Port Network2 (EPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network1 (EPN) to a telephone associated with a line port in the Processor Port Network (PPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network1 (EPN) to a listed directory number (LDN).
- Make a call from a telephone associated with a line port in the Expansion Port Network2 (EPN) to a telephone associated with a line port in the Expansion Port Network2 (EPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network2 (EPN) to a telephone associated with a line port in the Expansion Port Network1 (EPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network2 (EPN) to a telephone associated with a line port in the Processor Port Network (PPN).
- Make a call from a telephone associated with a line port in the Expansion Port Network2 (EPN) to a listed directory number (LDN).

Procedure

1. Select a working telephone associated with a line port in the Processor Port Network (PPN) as the test telephone, and pick up the receiver. Dial tone is heard.
2. Dial the extension number of a working telephone associated with a line port in the Processor Port Network (PPN) . Ringback is heard through the earpiece of the test telephone.
3. At the called telephone, pick up the receiver. Conversation must be satisfactory.
4. Hang up both telephones.
5. At the test telephone, pick up the receiver.

6. Dial the extension number of a working telephone associated with a line port in Expansion Port Network1 (EPN) . Ringback is heard through the earpiece of the test telephone.
7. At the called telephone, pick up the receiver. Conversation must be satisfactory.
8. Hang up both telephones.
9. At the test telephone, pick up the receiver.
10. Dial the extension number of a working telephone associated with a line port in Expansion Port Network2 (EPN). Ringback is heard through the earpiece of the test telephone.
11. At the called telephone, pick up the receiver. Conversation must be satisfactory.
12. Hang up both telephones.
13. At the test telephone, pick up the receiver. Dial tone is heard.
14. Dial a trunk access code. Dial tone is heard.
15. Dial the listed directory number (LDN) for a working telephone. Ringback is heard through the earpiece of the test telephone.
16. At the called telephone, pick up the receiver. Conversation must be satisfactory.
17. Hang up both telephones.
18. Select a working telephone associated with a line port in Expansion Port Network1 (EPN) as the test telephone and pick up the receiver. Dial tone is heard.
19. Dial the extension number of a working telephone associated with a line port in Expansion Port Network1 (EPN) cabinet. Ringback is heard through the earpiece of the test telephone.
20. At the called telephone, pick up the receiver. Conversation must be satisfactory.
21. Hang up both telephones.
22. At the test telephone, pick up the receiver.
23. Dial the extension number of a working telephone associated with a line port in the Expansion Port Network2 (EPN). Ringback is heard through the earpiece of the test telephone.
24. At the called telephone, pick up the receiver. Conversation must be satisfactory.
25. Hang up both telephones.
26. At the test telephone, pick up the receiver.

27. Dial the extension number of a working telephone associated with a line port in the Processor Port Network (PPN). Ringback is heard through the earpiece of the test telephone.
28. At the called telephone, pick up the receiver. Conversation must be satisfactory.
29. Hang up both telephones.
30. At the test telephone, pick up the receiver. Dial tone is heard.
31. Dial trunk access code. Dial tone is heard.
32. Dial the listed directory number (LDN) for a working telephone. Ringback is heard through the earpiece of the test telephone.
33. At the called telephone, pick up the receiver. Conversation must be satisfactory.
34. Hang up both telephones.
35. Select a working telephone associated with a line port in Expansion Port Network2 (EPN) as the test telephone and pick up the receiver. Dial tone is heard.
36. Dial the extension number of a working telephone associated with a line port in Expansion Port Network2 (EPN) cabinet. Ringback is heard through the earpiece of the test telephone.
37. At the called telephone, pick up the receiver. Conversation must be satisfactory.
38. Hang up both telephones.
39. At the test telephone, pick up the receiver.
40. Dial the extension number of a working telephone associated with a line port in the Expansion Port Network1 (EPN). Ringback is heard through the earpiece of the test telephone.
41. At the called telephone, pick up the receiver. Conversation must be satisfactory.
42. Hang up both telephones.
43. At the test telephone, pick up the receiver.
44. Dial the extension number of a working telephone associated with a line port in the Processor Port Network (PPN). Ringback is heard through the earpiece of the test telephone.
45. At the called telephone, pick up the receiver. Conversation must be satisfactory.
46. Hang up both telephones.
47. At the test telephone, pick up the receiver. Dial tone is heard.
48. Dial the trunk access code. Dial tone is heard.

49. Dial the listed directory number (LDN) for a working telephone. Ringback is heard through the earpiece of the test telephone.
50. At the called telephone, pick up the receiver. Conversation must be satisfactory.
51. Hang up both telephones.

Test the Attendant Console

Description

Check all lamps are operational and call another telephone in the system.

Procedure

1. Open front panel of console, press and hold **Test** or **Self-Test** switch.
2. Verify all lamps on display light and remain lighted. Each row of lamps on the console lights and goes dark in sequence from top to bottom.
3. Press **Start.**

   Listen for dial tone.

   Atnd or green lamp associated with idle call appearance button lights.

   Pos Avail or **Avail** lamp goes dark.
4. Dial number associated with a working telephone. Audible ringing tone is heard in ear piece.
5. Press **Release.**

   Audible ringing tone is silenced.

   Atnd or green lamp goes dark.

   Pos Avail or **Avail** lamp lights.

Test the Selector Console

Description

Check that all selector console lamps are operational. Make call to a telephone in the system.

Procedure

1. Open front panel of attendant console, press and hold **Test** or **Self-Test** switch.
2. Each row of lamps on the selector console lights and goes dark in sequence from top to bottom.
3. Press hundreds group select button.

   Hundreds group select lamp lights and any lamps associated with busy telephone light.
4. Press Direct Extension Selection (DXS) button for the desired extension.

   Audible ringing tone is heard in the earpiece on attendant console.
5. On attendant console, press **Release.**

   Audible ringing tone is silenced.

Test External Ringing

Description

Make test call to attendant console to verify ringing device sounds when **Night** lamp on console is lighted. If ringing device has not yet been installed by customer, connect spare telephone to information outlet reserved for ringing device and make test call.

Procedure—Ringing Device Installed

1. On G1, press the **Night** key.
2. Verify the **Night** lamp lights.
3. Select a working telephone as a test telephone.
4. At the test telephone, pick up the receiver, dial a trunk access code and the listed directory number (LDN) for the attendant console.
5. Verify the ringing device sounds.

6. At the test telephone, hang up the receiver.
7. On the attendant console, press **Night** key.
8. Verify Night lamp goes dark.

Procedure—Ringing Device Not Installed

1. Connect a spare 2500-type telephone to the information outlet indicated on the console parameters screen.
2. On the attendant console, press **Night** key.
3. Verify **Night** lamp lights.
4. Select a working telephone as the test telephone.
5. At the test telephone, pick up the receiver, dial a trunk access code and the listed directory number for the attendant console.
6. Verify ringing is heard on the spare telephone.
7. At the test telephone, hang up the receiver.
8. Disconnect the spare telephone from the information outlet.
9. Press the **Night** key on the attendant console.
10. Verify the **Night** lamp goes off.
11. Notify the customer that installation is complete and the external ringing device can be installed.

Test Queue Warning Indicator

Description

Make a test call to an extension associated with a Uniform Call Distribution (UCD) or Direct Department Calling (DDC) group, and verify the queue warning indicator lamp lights. If the queue warning indicator has not yet been installed by customer, connect a spare telephone to the information outlet reserved for queue warning indicator and make a test call.

Procedure—Queue Warning Indicator Installed

1. Administer Queue Warning Indicator number to 0 on Hunt Group Screen. Record old number.
2. Make sure all telephones in the group are disconnected or are “busy.”
3. Select a working telephone as the test telephone.

4. At the test telephone, pick up the receiver and dial the number associated with a uniform call distribution (UCD) or a direct department calling (DDC) group.
5. Verify the lamp lights (see the following note).

   NOTE:
   Delay Recorded Announcement is heard if it is administered for this group. The delay announcement is followed by music if Music-on-Hold is administered.

6. At the test telephone, hang up the receiver.
7. Administer queue warning threshold number to number changed in Step 1.
8. Restore service to all telephones made busy or disconnected in Step 2.

Procedure—Queue Warning Indicator Not Installed

1. Administer Queue Warning Indicator number to 0 on Hunt Group Screen. Record old number.
2. Make sure all telephones in the group are disconnected or are "busy."
3. Connect a spare 2500-type telephone to an information outlet.
4. Select a working telephone as the test telephone.
5. At the test telephone, pick up the receiver and the dial number associated with a uniform call distribution (UCD) or a direct department calling (DDC) group.
6. Verify ringing is heard on the spare telephone (see the following note).

   NOTE:
   Delay Recorded Announcement is heard at the test telephone if it is administered for this group. The delay announcement is followed by music if Music-on-Hold is administered.

7. At the test telephone, hang up the receiver.
8. Disconnect the spare telephone from the information outlet.
9. Administer queue warning threshold number to number changed in Step 1.
10. Restore service to all telephones made busy or disconnected in Step 2. Notify customer that installation is complete and that queue warning indicator lamp can be installed.

Test Integrated Announcement

Description

The TN750 Announcement circuit pack provides the ability to store messages. The messages can be recorded from telephones on- or off-premises and have flexible message lengths.

The telephone selected as the test telephone must have a class of service (COS) with console permission enabled.

Procedure — Record Announcement

1. Select test telephone with console permission enabled.
2. Dial access code followed by the integrated announcement extension number. Dial Tone is heard.
3. Dial "1." A short burst of tone is heard and recording begins.
4. Speak the announcement into the telephone.
5. When you have finished recording the announcement, dial "#" or hang up. Recording stops and dial tone is heard.

Procedure — Playback Announcement

1. Dial access code followed by the integrated announcement extension number. Dial Tone is heard.
2. Dial "2." The announcement is heard and dial tone is heard at completion of announcement.

Procedure —Delete Announcement

1. Dial access code followed by the integrated announcement extension number. Dial Tone is heard.
2. Dial "3." A confirmation tone is heard and announcement is deleted.

Test Music-on-Hold

Description

Verify music is provided to a held party during any hold interval.

Procedure

1. Select a working telephone as the test telephone.
2. At the test telephone, pick up the receiver and dial 0 for the attendant console.
3. At attendant console, answer call by pressing call appearance button **(**a through f **)** associated with the flashing **Atnd** lamp. The audible alert stops. **Atnd** lamp lights steadily.
4. Press **Hold** at attendant console. The **Hold** lamp associated with the call appearance button lights.
5. Verify music is heard at the test telephone.
6. Hang up the test telephone.

Test Emergency Transfer

Description

Put system in emergency transfer mode and make call using emergency transfer telephone.

There may be one, two, three, or four Emergency Transfer switches, depending on the system configuration. The switch is located on the Processor circuit pack(s) in the Processor Port Network (PPN) control carrier, and the switch is located on the Maintenance circuit pack in the Expansion Port Network (EPN) control carrier.

The Expansion Port Network (EPN) cabinets may be tested separately from the Processor Port Network (PPN) cabinets in any system, but the Processor Port Network (PPN) cabinets in a high or critical-reliability system must have both switches set to the **ON** position to invoke Emergency Transfer.

Procedure

1. At control carrier, set **Emergency Transfer** switch(es) to **ON** position. See Note.

   NOTE:
   Pull out on Switches to overcome detents.

2. At emergency transfer telephone connected to the port network being tested, pick up the receiver and press **Ground Start** key, if so equipped. Dial tone is heard.
3. Dial number associated with an outside number. Audible ringing or busy tone is heard.
4. Hang up the test telephone.
5. At control carrier, set **Emergency Transfer** switch(es) to **AUTO** position.

Test Remote Access Interface (known as Initialization and Administration System)

Description

Test the communication link between the switch and Initialization and Administration System (INADS) and verify the alarm notification process. Make a remote test from Initialization and Administration System (INADS) to the system and a local test from the system to Initialization and Administration System (INADS).

NOTE:
In some countries, this remote access interface is not allowed. Check with your AT&T representative.

Procedure—Remote Test

1. Call outside personnel who will be accessing the switch remotely to perform administration, maintenance, and testing.
2. Ask remote access personnel to call system and login and display System Parameters Maintenance screen. The login must be successful.

   NOTE:
   Requirement: Product Identification on the System Parameters screen must match the Product Identification administered by the local technician.

3. Remote access personnel enters **test inads-link** command, terminates login, and disconnects.
4. Remote access personnel then check the appropriate trouble ticket. The trouble ticket should show ''INADS,n,MINOR'' in the description field to indicate a minor off-board alarm was reported to the remote access personnel. There may be additional text in the description field if other resolved alarms were reported.
5. Remote access personnel make second call and login to system and checks the error log to verify no problems. See *DEFINITY Communications System Generic 1 and Generic 3i/s/vs Maintenance*, 555-204-105, or *DEFINITY Communications System Generic 3r Maintenance*, 555-230-105, for error log and error code information.
6. Remote access personnel terminate login and disconnects.

Procedure—Local Test

1. Log in and enter **test inads-link** command.
2. Request remote access personnel to verify a trouble ticket was created.
3. Check error log to verify no problems.
4. Log off the system.

Test Basic Rate Interface (BRI)

Description

Check for normal voice telephone function (dial tone, ability to make and receive calls). Check for the correct Service Profile Identifier (SPID) on a display Telephone and the G3 Management Terminal (G3-MT).

Procedure—Dial Tone

1. Lift handset of Basic Rate Interface (BRI) telephone and listen for dial tone.

Procedure—Make and Receive Calls

1. Select a working telephone with display and dial that telephone's extension number from the Basic Rate Interface (BRI) test telephone. The called telephone rings.
2. At the called telephone, pick up the receiver. Conversation must be satisfactory.

3. Verify the extension number of the calling telephone is displayed on the display of the called telephone. The extension must be correct.
4. Hang up both telephones.
5. Call the Basic Rate Interface (BRI) test telephone from the other telephone. The Basic Rate Interface (BRI) test telephone rings.
6. Verify the name and extension of the called Basic Rate Interface (BRI) test telephone is correct as displayed on the calling telephone.
7. Hang up both telephones.

Procedure—Checking the Service Profile Identifier (SPID)

This test requires a display telephone at the test telephone station.

1. Use appropriate procedures to display the Service Profile Identifier (SPID) on the test telephone. Procedures differ depending on the model of telephone being used. The Service Profile Identifier (SPID) must be correct.

Approved Grounds

A

This chapter describes the approved grounds appropriate for the single-carrier cabinets.

Definition of Approved Ground

An approved ground is the closest acceptable medium for grounding the building entrance protector, entrance cable shield, or single-point ground of electronic Private Branch Exchange (PBX) equipment.

If more than one type of approved ground is available on the premises, the grounds must be bonded together as required in Section 250-81 of the National Electrical Code (NEC), or the applicable code in your country.

Acceptable Mediums for Protective Ground

The following protective ground types are acceptable:

Grounded Building Steel. — The metal frame of the building where it is effectively grounded by one of the following grounds: acceptable metallic water pipe, concrete encased ground, or a ground ring.

Acceptable Water Pipe. — A metal underground water pipe, at least 1/2 inch (1.3 cm) in diameter, in direct contact with the earth for at least 10 feet (3 meters). The pipe must be electrically continuous (or made electrically continuous by bonding around insulated joints, plastic pipe, or plastic water meters), to the point where the protector ground wire is connected. A metallic underground water pipe must be supplemented by the metal frame of the building, a concrete

encased ground, or a ground ring. If these grounds are not available, the water pipe ground can be supplemented by one of the following types of grounds:

- Other local metal underground systems or structures — Local underground structures such as tanks and piping systems
- Rod and pipe electrodes — A 5/8 inch (1.6 cm) (solid rod) or 3/4 inch (1.9 cm) (conduit or pipe) electrode driven to a minimum depth of 8 feet (2.5 meters)
- Plate electrodes — Must have a minimum of 2 square feet (0.6 sq. meter) of metallic surface exposed to the exterior soil

Concrete Encased Ground. — An electrode encased by at least 2 inches (5 cm) of concrete and located within and near the bottom of a concrete foundation or footing in direct contact with the earth. The electrode must be at least 20 feet (6 meters) of one or more steel reinforcing bars or rods 1/2 inch (1.3 cm) in diameter, or at least 20 feet (6 meters) of bare, solid copper, 4 AWG wire.

Ground Ring. — A buried ground that encircles a building or structure at a depth of at least 2-1/2 feet (0.8 meter) below the earth's surface. The ground ring must be at least 20 feet (6 meters) of 2-AWG, bare, copper wire.

Approved Floor Grounds

Approved floor grounds are those grounds on the floor of each high-rise building suitable for connection to the ground terminal in the riser closet and to the Private Branch Exchange (PBX) equipment single-point ground terminal. Approved floor grounds may include the following:

- Building steel
- The grounding conductor for the secondary side of the power transformer feeding the floor
- Metallic water pipes
- Power feed metallic conduit supplying panel boards on the floor
- A grounding point specifically provided in the building for the purpose

WARNING:
If the approved ground or approved floor ground can only be accessed inside a dedicated power equipment room, then connections to this ground should be made by a licensed electrician.

NOTE:
All protective grounds must be electrically connected together to form a single grounding electrode system.

Earthquake Protection Procedures

B

This appendix describes earthquake protection installation procedures to perform if your site experiences earthquake activity.

Use the following procedures to install earthquake protection for your cabinets.

Install Floor Mounting to Attach Cabinet to Floor

Attach your DEFINITY System Generic 3 (G3) cabinets to the floor by completing the following steps:

1. Place the Front Mounting Angle at the location selected for the front of the control cabinet.
2. Using the angle as the template, mark the location of the mounting bolts.
3. Drill two holes 1/2-inch (1.3 cm) in diameter and 1-1/2 (3.8 cm) inches deep at the spot marked in Step 2.
4. Mount the Front Mounting Angle to the floor (see Figure B-1).

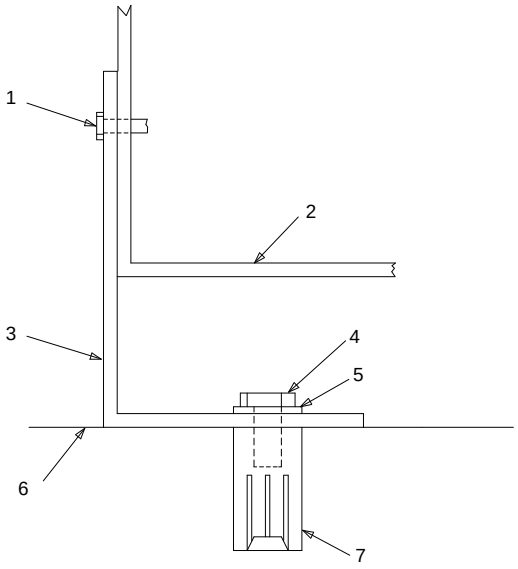


Figure Notes:

1. Screw
2. Cabinet
3. Mounting angle
4. Bolt
5. Nylon insulating washer
6. Floor
7. Concrete anchor

Figure B-1. Front Mounting Angle—Concrete Floor

5. Move the cabinet back into place and attach the cabinet to the angle with two #12-24x1/2-inch (1.3 cm) thread-forming screws.
6. Insert a pencil or marker through holes in the lower back of the cabinet and mark the floor directly beneath each hole.
7. Move the cabinet out of the way.
8. Drill two holes 1/2-inch (1.3 cm) in diameter and 1-1/2-inches (3.8 cm) deep at the spot marked in Step 6.
9. Move the cabinet back into place.

10. Attach the cabinet to the front mounting angle using four #12-24 by 1/2-inch (1.3 cm) thread forming screws.
11. In the back of the cabinet, lay the stiffener on the bottom of the cabinet, aligning the stiffener with the holes in the bottom of the cabinet.
12. Fasten the cabinet to the floor (see Figure B-2).

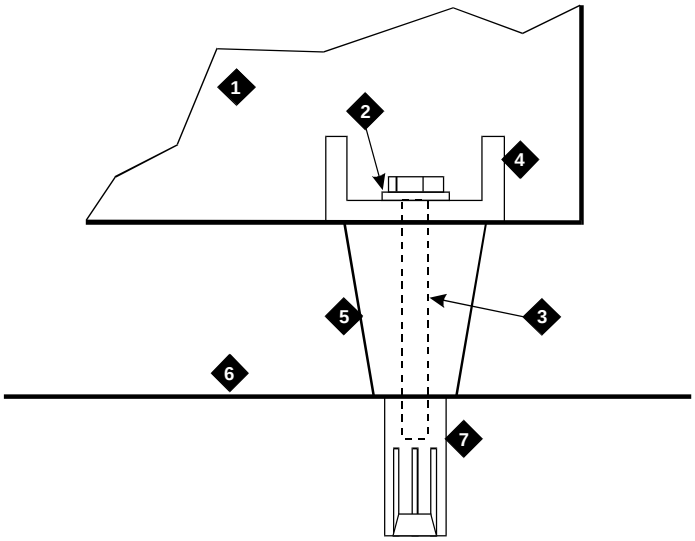


Figure Notes:

1. Cabinet
2. Nylon Insulating Washer (2 Required)
3. Hex Bolt (2 Required)
4. Stiffener
5. Cabinet Foot
6. Floor
7. Concrete Anchor

Figure B-2. Cabinet Earthquake Mounting—Concrete Floor Side View

If critical reliability is provided, Cabinet B will be another control cabinet.

Install Ground Plates on Cabinet Backs

The ground plate provides the ground connection between cabinets, provides radio frequency (RF) radiation protection, and also stabilizes the cabinets.

A ground plate is required between each cabinet (see Figure B-3). Complete the following steps to attach the ground plate.

1. At the back of the cabinets, put in all the screws on the upper and lower panels, except for the screws that run along the top and bottom of each cabinet.
2. At the upper cabinet, place the top of the ground plate over the bottom of the lower-back panel. Align the four holes in the ground plate with the four holes at the bottom of the lower back cover of the cabinet and insert the screws. Do not tighten the screws yet.
3. At the top of the cabinet below the cabinet referred to in Step 2, align the bottom of the ground plate with the top four holes in the upper back cover of the lower cabinet. Insert the four screws. Do not tighten the screws yet.
4. Repeat Steps 2 and 3 until the earthquake ground plates are installed between all cabinets.
5. Tighten all screws.

Install Front Plates

For earthquake protection and electromagnetic shielding (as required by CISPR 22 regulations), use the front plate instead of the cabinet clip to attach the cabinets to each other. Use one front plate between each cabinet. (Figure B-3).

Complete the following steps to install the front plates to the cabinet:

1. At the front of the cabinets, align the holes in the top of the earthquake front plate with the holes at the bottom of the upper cabinet, and insert the four screws. Do not tighten the screws yet.
2. At the front of the cabinets, align the holes in the bottom of the earthquake front plate with the holes at the top of the lower cabinet, and insert the four #12-24 by 1/2-inch (1.27 cm) thread-forming screws. Do not tighten the screws yet.
3. Repeat Steps 1 and 2 until all the cabinets are fastened together with the earthquake front plate.
4. Tighten all screws.

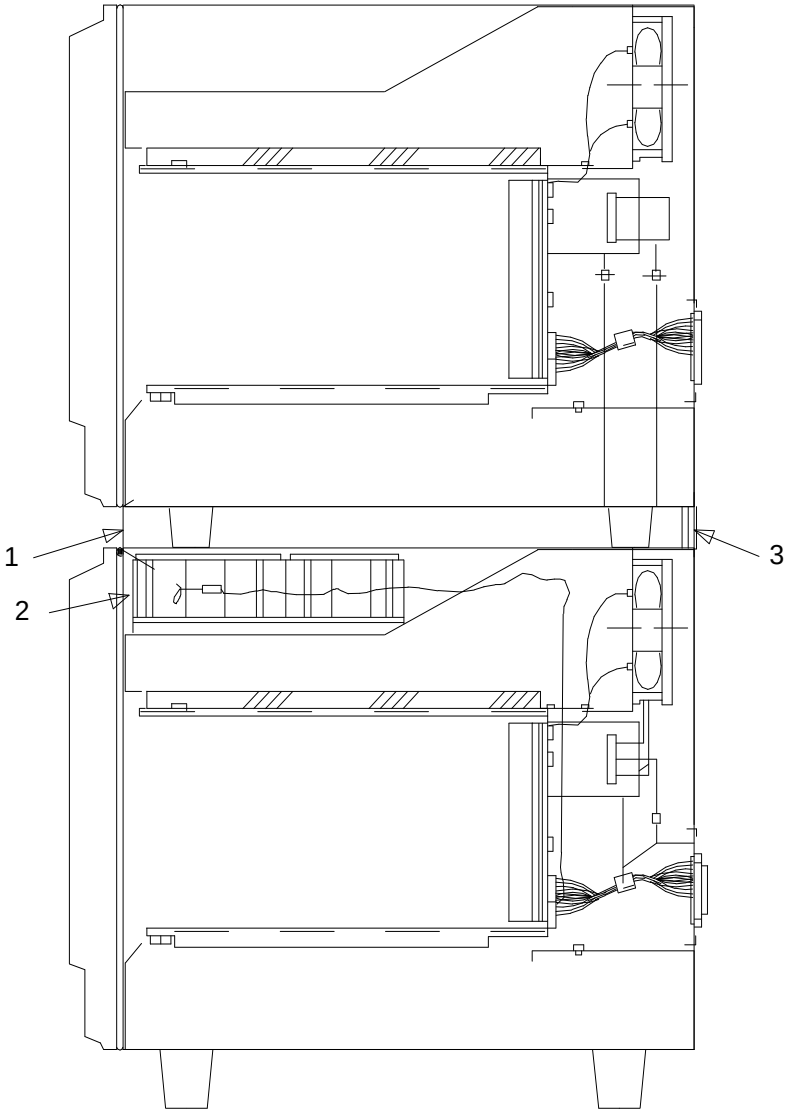


Figure Notes:

1. Front Plate
2. Battery
3. Back Plate

■ Side View of 2-Cabinets Port Network

Figure B-3. Single-Carrier Cabinet Ground Plate, Front Plate, and Battery Locations

DEFINITY AUDIX System Power Procedures

C

Manually Power Down DEFINITY AUDIX System

A yellow caution sticker is placed on the switch's power unit telling technicians to shut down the DEFINITY AUDIX System prior to powering down the switch.

To shutdown the DEFINITY AUDIX system, do the following:

1. Using a pointed object, such as a paper clip or pen (do not use a pencil), press the Boot/Shutdown button (See A on Figure C-1).
2. Hold Boot/Shutdown button in until Liquid Crystal Display (LCD) (see B in Figure C-1) flashes the message: `MSHUT.`
3. Release Boot/Shutdown button.

NOTE:
DEFINITY AUDIX System takes approximately five minutes to shut down. The following sequence of events will happen during shutdown:

- Display (See B on Figure C-1) flashes the message: `MSHUT`.
- About two and a half minutes into shutdown, the display flashes the message, `TEST`, and the red light emitting diode (LED) (See C on Figure C-1) is steady on.
- The DEFINITY AUDIX System is now powered down.

NOTE:
Even though the DEFINITY AUDIX System is shutdown, the "heartbeat" indication on the display continues to flash.

NOTE:
Upon the switch powering up, DEFINITY AUDIX System will automatically reboot. This sequence may show an `MD` or `MJ ADX` alarm in the display until the switch has powered up. When the switch has completed its power up sequence, the DEFINITY AUDIX System display will read: `ADX`.

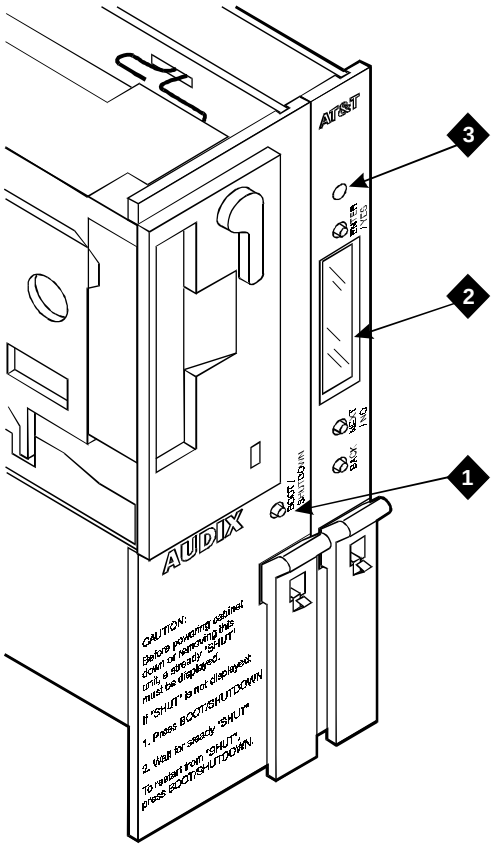


Figure Notes:

1. Boot/Shutdown Button
2. Liquid Crystal Display (LCD)
3. Red Light Emitting Diode (LED)

Figure C-1. DEFINITY AUDIX System

Manual Power Up DEFINITY AUDIX System

To power up the DEFINITY AUDIX System, do the following:

1. Using a pointed object such as a paper clip or a pen (do not use a pencil), press the Boot/Shutdown button.

2. Hold Boot/Shutdown button in until the display indicates the message, BTEST, steady on.
3. Release Boot/Shutdown button.

NOTE:
DEFINITY AUDIX System takes approximately five minutes to power up. The following occurs during power up:

- Display indicates the message, BTEST, steady on and red light emitting diode (LED) is steady on.
- About 30 seconds into power up, the display indicates the message, BOOT, and the red light emitting diode (LED) goes off.
- The display has the following sequence of steady on messages:
  - OSINIT
  - OS
  - AINIT
  - ADX
- The DEFINITY AUDIX System is now powered up.

NOTE:
When DEFINITY AUDIX System is in the active state, the display indicates a steady on message, ADX, and the red light emitting diode (LED) is off.

Country Differences

D

United States to United Kingdom and France Terminology Translations

United States	United Kingdom	France
Trunk	Exchange Line	
Station	Extension Line	
Attendant	Operator's console	
Digital Service 1 (DS1)/T1	E1	
CO (Central Office)	Public exchange or Public Switched Telephone Network (PSTN)	
Tip/Ring	A/B	
Direct Inward Dialed (DID)	Direct Dial Inward (DDI)	
ground	earth	

Country-Specific Hardware

The following pages contain tables of country-specific hardware. Please see the table for your country required hardware.

This information is volatile and is, therefore, dated. If you are reading this document more than six months after the date of this document, please check with AT&T personnel in your country for the most recent information.

Table D-1. United States and Canada

		United States & Canada				
Tone Detector		TN2182	TN744C	TN748D		
Tone-Clock		TN2182	TN780	TN768		
Call Classifier		TN744C	TN2182	TN744B		
R2MFC Circuit		Not Applicable				
Speech Synthesizer		TN725B				
Announcement		TN750C	TN750B			
Auxiliary Trunk		TN763D				
Analog Direct Inward Dialed (DID) Trunk		TN753				
Analog Central Office Trunk (no PPM) *		TN747B				
Analog Central Office Trunk (w/PPM) *		Not Applicable				
4 Wire Tie Trunk		TN760D				
2 Wire Tie Trunk		Not Applicable				
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		TN464F	TN464E	TN464D	TN767	
Digital Tie Trunk		TN464F	TN464E	TN464D	TN767	TN722B
Digital Integrated Services Digital Network (ISDN) Central Office Trunk		TN464F	TN464E	TN464D	TN767	
8 port Analog Line		TN742				
16 port Analog Line		TN746B				
4 Wire Digital Line		TN754B	TN762B			
2 Wire Digital Line		TN2181				
Data Line		TN726B				

*PPM means Periodic Pulse Metering.

Table D-2. Argentina

		Argentina			
Tone Detector		TN744C	TN2182	TN748D	TN748C
Tone-Clock		TN2182	TN780		
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		TN744C	TN2182	TN744B	
Speech Synthesizer		TN725B			

Table D-2. Argentina

	Argentina			
Announcement	TN750C	TN750B		
Auxiliary Trunk	TN763D			
Analog Direct Inward Dialed (DID) Trunk	Not Applicable			
Analog Central Office (CO) Trunk (no PPM *)	TN747B			
Analog Central Office (CO) Trunk (w/PPM *)	Not Applicable			
4 Wire Tie Trunk	TN760Dv15			
2 Wire Tie Trunk	Not Applicable			
Digital Central Office (Co)/Direct Inward Dialed (DID) Trunk	TN464F	TN464E	TN464D	
Digital Tie Trunk	TN464F	TN464E	TN464D	
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk	TN464F	TN464E	TN464D	
8 port Analog Line	TN742			
16 port Analog Line	TN746B			
4 Wire Digital Line	TN754B			
2 Wire Digital Line	TN2136			
Data Line	TN726B			

*PPM means Periodic Pulse Metering.

Table D-3. Australia

	Australia			
Tone Detector	TN744C	TN2182	TN420C	TN420B
Tone-Clock	TN2182	TN780	TN419B	
Call Classifier	TN744C	TN2182	TN744B	
R2MFC Circuit	Not Applicable			
Speech Synthesizer	TN457			
Announcement	TN750C	TN750B		
Auxiliary Trunk	TN763D	TN417		
Analog Direct Inward Dialed (DID) Trunk	TN436B	TN436		
Analog Central Office (CO) Trunk (no PPM *)	TN2147C	TN2147		
Analog Central Office (CO) Trunk (w/PPM *)	TN465C	TN438B		
4 Wire Tie Trunk	TN437B	TN437		
2 Wire Tie Trunk	TN439			

Table D-3. Australia

		Australia			
Digital Central Office(CO)/Direct Inward Dialed (DID) Trunk		Not Applicable			
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		TN464F	TN464E	TN464D	TN464C
8 port Analog Line		TN467			
16 port Analog Line		TN2183	TN468B	TN468	
4 Wire Digital Line		TN754B	TN413		
2 Wire Digital Line		TN2181			
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-4. Belgium

		Belgium			
Tone Detector		TN744C	TN2182	TN420C	
Tone-Clock		TN2182	TN780		
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		TN744C	TN2182	TN744B	
Speech Synthesizer		TN457			
Announcement		TN750C	TN750B		
Auxiliary Trunk		TN763D			
Analog Direct Inward Dialed (DID) Trunk		TN2146			
Analog Central Office (CO) Trunk (no PPM *)		TN2147C	TN2147		
Analog Central Office (CO) Trunk (w/PPM *)		TN465C	TN465B		
4 Wire Tie Trunk		TN760Dv11			
2 Wire Tie Trunk		Not Applicable			
Digital Central Office(CO)/Direct Inward Dialed (DID) Trunk		TN464F	TN464E	TN464D	
Digital Tie Trunk		TN464F	TN464E	TN464D	
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		TN464F	TN464E	TN464D	
8 port Analog Line					
16 port Analog Line		TN2183	TN2149		

Table D-4. Belgium

		Belgium			
4 Wire Digital Line		TN754B			
2 Wire Digital Line		TN2181	TN2136		
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-5. China

		China			
Tone Detector		TN744C	TN2182		
Tone-Clock		TN2182			
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		TN744C	TN2182		
Speech Synthesizer					
Announcement		TN750C	TN750B		
Auxiliary Trunk		TN763D			
Analog Direct Inward Dialed (DID) Trunk					
Analog Central Office (CO) Trunk (no PPM *)		TN465C			
Analog Central Office (CO) Trunk (w/PPM*)					
4 Wire Tie Trunk		TN760D			
2 Wire Tie Trunk					
Digital Central Office/Direct Inward Dialed (DID) Trunk		TN464F			
Digital Tie Trunk		TN464F	TN464E		
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		TN464F			
8 port Analog Line					
16 port Analog Line		TN2183			
4 Wire Digital Line		TN754B			
2 Wire Digital Line		TN2181			
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-6. Czech Republic, Slovakia, and Ecuador

	Czech Republic & Slovakia			Ecuador	
Tone Detector	TN744C	TN2182	TN420C		
Tone-Clock	TN2182	TN780			
Call Classifier	TN744C	TN2182	TN744B		
R2MFC Circuit	Not Applicable				
Speech Synthesizer	TN457				
Announcement	TN750C	TN750B		TN750C	TN750B
Auxiliary Trunk	TN763D			TN763D	
Analog Direct Inward Dialed (DID) Trunk	TN753v17				
Analog Central Office (CO) Trunk (no PPM *)	TN747Bv12				
Analog Central Office (CO) Trunk (w/PPM *)	TN465C	TN465B			
4 Wire Tie Trunk	TN760Dv11				
2 Wire Tie Trunk					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk	TN464F	TN464E			
Digital Tie Trunk	TN464F	TN464E			
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk	Not Applicable				
8 port Analog Line					
16 port Analog Line	TN746B				
4 Wire Digital Line	TN754B			TN754B	
2 Wire Digital Line	TN2136			TN2136	
Data Line	TN726B			TN726B	

*PPM means Periodic Pulse Metering.

Table D-7. France and Germany

	France			Germany		
Tone Detector	TN744C	TN2182		TN744C	TN2182	TN420C
Tone-Clock	TN2182			TN2182	TN780	
Call Classifier	TN744C	TN2182	TN744B	TN744C	TN2182	TN744B

Table D-7. France and Germany

	France			Germany		
R2MFC Circuit	Not Applicable			Not Applicable		
Speech Synthesizer	TN457			Not Applicable		
Announcement	TN750C	TN750B		TN750C	TN750B	
Auxiliary Trunk	Not Applicable			TN763D		
Analog Direct Inward Dialed (DID) Trunk	Not Applicable			TN2184		
Analog Central Office (CO) Trunk (no PPM *)	Not Applicable			TN2147C		
Analog Central Office (CO) Trunk (w/PPM *)	Not Applicable			TN2184		
4 Wire Tie Trunk	TN760D~			Not Applicable		
2 Wire Tie Trunk	Not Applicable			Not Applicable		
Digital Central Office/ (CO) Direct Inward Dialed (DID) Trunk	TN464F			Not Applicable		
Digital Tie Trunk	TN464F			TN464E & F		
Digital Integrated Services Digital Network (ISDN) Central Office Trunk	TN464F			TN464F		
8 port Analog Line	Not Applicable			Not Applicable		
16 port Analog Line	TN2183			TN2183	TN2180	
4 Wire Digital Line	TN754B			TN754B		
2 Wire Digital Line	TN2181			TN2181		
Data Line	TN726B			TN726B		
Ring Generator	TN2202					
Music on Hold	122A					

NOTE:
All systems in France require France-specific carriers provided by AT&T GBCS Barphone.

*PPM means Periodic Pulse Metering.

~ Become RON/TRON with modifications.

Table D-8. Greece

		Greece			
Tone Detector		TN744C	TN2182	TN748D	
Tone-Clock		TN2182	TN780	TN756	
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		Not Applicable			
Speech Synthesizer		TN725B			
Announcement		TN750C	TN750B	TN750	
Auxiliary Trunk		TN763D	TN763C		
Analog Direct Inward Dialed Trunk (DID)		TN753			
Analog Central Office (CO) Trunk (no PPM *)		TN747B			
Analog Central Office (CO) Trunk (w/PPM *)		TN465C	TN465B	TN465	
4 Wire Tie Trunk		TN760D			
2 Wire Tie Trunk					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		TN464F	TN464E	TN464D	
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		Not Applicable			
8 port Analog Line		TN742			
16 port Analog Line		TN746B			
4 Wire Digital Line		TN754B			
2 Wire Digital Line		TN2181			
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-9. Hong Kong

		Hong Kong			
Tone Detector		TN744C	TN2182	TN748D	
Tone-Clock		TN2182	TN780	TN756	
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		Not Applicable			
Speech Synthesizer		TN725B			

Table D-9. Hong Kong

		Hong Kong			
Announcement		TN750C	TN750B	TN750	
Auxiliary Trunk		TN763D	TN763C		
Analog Direct Inward Dialed (DID) Trunk		TN753			
Analog Central Office (CO) Trunk (no PPM *)		TN747B	TN465		
Analog Central Office (CO) Trunk (w/PPM *)		Not Applicable			
4 Wire Tie Trunk		TN760D			
2 Wire Tie Trunk					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		Not Applicable			
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		Not Applicable			
8 port Analog Line		TN742			
16 port Analog Line		TN746B			
4 Wire Digital Line		TN754B			
2 Wire Digital Line		TN2181			
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-10. Hungary

	Hungary			
Tone Detector	TN744C	TN2182	TN748D	TN748C
Tone-Clock	TN2182	TN780	TN756	
Call Classifier	TN744C	TN2182	TN744B	
R2MFC Circuit	TN744C	TN2182	TN744B	
Speech Synthesizer	TN725B			
Announcement	TN750C	TN750B		
Auxiliary Trunk	TN763D			
Analog Direct Inward Dialed (DID) Trunk	TN753			
Analog Central Office (CO) Trunk (no PPM *)	TN747B			
Analog Central Office Trunk (w/PPM *)	TN465C	TN465B		
4 Wire Tie Trunk	TN760D			
2 Wire Tie Trunk	TN2140B			
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk	TN464F	TN464E	TN464D	
Digital Tie Trunk	TN464F	TN464E	TN464D	
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk	Not Applicable			
8 port Analog Line	TN742			
16 port Analog Line	TN746B			
4 Wire Digital Line	TN754B			
2 Wire Digital Line	TN2181	TN2136		
Data Line	TN726B			

*PPM means Periodic Pulse Metering.

Table D-11. Italy

	Italy					
Tone Detector	TN744C	TN2182	TN420C			
Tone-Clock	TN2182	TN780	TN419B			
Call Classifier	TN744C	TN2182	TN744B			
R2MFC Circuit	Not Applicable					
Speech Synthesizer	TN433					
Announcement	TN750C	TN750B				

Table D-11. Italy

	Italy					
Auxiliary Trunk	TN763D	TN417				
Analog Direct Inward Dialed (DID) Trunk	TN2139					
Analog Central Office (CO) Trunk (no PPM *)	Not Applicable					
Analog Central Office (CO) Trunk (w/PPM *)	TN2138					
4 Wire Tie Trunk	TN2140B	TN2140				
2 Wire Tie Trunk	TN497					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk	TN464F	TN464E	TN464D	TN464C	TN464B	
Digital Tie Trunk	TN464F	TN464E	TN464D	TN464C	TN464B	
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk	Not Applicable					
8 port Analog Line						
16 port Analog Line	TN2183	TN2135				
4 Wire Digital Line	TN754B	TN413				
2 Wire Digital Line	TN2181	TN2136				
Data Line	TN726B					

*PPM means Periodic Pulse Metering.

Table D-12. Japan

		Japan				
Tone Detector		TN744C	TN2182	TN748D		
Tone-Clock		TN2182	TN780	TN756		
Call Classifier		TN744C	TN2182	TN744B		
R2MFC Circuit		Not Applicable				
Speech Synthesizer		TN725B				
Announcement		TN750C	TN750B	TN750		
Auxiliary Trunk		TN763D	TN763C			
Analog Direct Inward Dialed (DID) Trunk		TN429				
Analog Central Office (CO) Trunk (no PPM *)		TN429	TN465			
Analog Central Office (CO) Trunk (w/PPM *)		Not Applicable				
4 Wire Tie Trunk		TN760D				
2 Wire Tie Trunk		TN439				
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		TN464F	TN464E	TN464D	TN464C	TN767
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C	TN767
Digital Integrated Services Digital Network (ISDN) Central Office Trunk		TN464F	TN464E	TN464D	TN464C	
8 port Analog Line		TN742				
16 port Analog Line		TN746B	TN479			
4 Wire Digital Line		TN754B				
2 Wire Digital Line		TN2181				
Data Line		TN726B				

*PPM means Periodic Pulse Metering.

Table D-13. Mexico

		Mexico			
Tone Detector		TN744C	TN2182	TN748D	
Tone-Clock		TN2182	TN780	TN756	
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		TN744C	TN2182	TN744B	
Speech Synthesizer		TN725B			

Table D-13. Mexico

		Mexico			
Announcement		TN750C	TN750B	TN750	
Auxiliary Trunk		TN763D	TN763C		
Analog Direct Inward Dialed Trunk (DID)		Not Applicable			
Analog Central Office (CO) Trunk (no PPM *)		TN747B			
Analog Central Office (CO) Trunk (w/PPM *)		TN465C	TN465B		
4 Wire Tie Trunk		TN760D			
2 Wire Tie Trunk					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		TN464F			
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		TN464F			
8 port Analog Line		TN742			
16 port Analog Line		TN746B			
4 Wire Digital Line		TN754B			
2 Wire Digital Line					
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-14. Netherlands

		Netherlands		
Tone Detector		TN744C	TN2182	TN420C
Tone-Clock		TN2182	TN780	
Call Classifier		TN744C	TN2182	TN744B
R2MFC Circuit		Not Applicable		
Speech Synthesizer		TN457		
Announcement		TN750C	TN750B	
Auxiliary Trunk		TN763D		
Analog Direct Inward Dialed (DID) Trunk		TN2146		
Analog Central Office (CO) Trunk (no PPM *)		TN2147C		
Analog Central Office (CO) Trunk (w/PPM *)		Not Applicable		
4 Wire Tie Trunk		TN760Dv11		
2 Wire Tie Trunk				

Table D-14. Netherlands

		Netherlands		
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		TN464F	TN464E	TN464D
Digital Tie Trunk		TN464F	TN464E	TN464D
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		TN464F	TN464E	TN464D
8 port Analog Line				
16 port Analog Line		TN2183	TN2144	
4 Wire Digital Line		TN754B		
2 Wire Digital Line		TN2136		
Data Line		TN726B		

*PPM means Periodic Pulse Metering.

Table D-15. Poland and Russia

		Poland					Russia		
Tone Detector		TN744C	TN2182	TN748D	TN748C		TN744C		TN420C
Tone-Clock		TN2182	TN780	TN756			TN2182	TN780	
Call Classifier		TN744C	TN2182	TN744B					
R2MFC Circuit		TN744C	TN2182	TN744B			TN744C	TN2182	TN744Bv2
Speech Synthesizer		TN725B					TN457		
Announcement		TN750C	TN750B				TN750C	TN750B	
Auxiliary Trunk		TN763D					TN763D		
Analog Direct Inward Dialed (DID) Trunk		TN753					TN753v17	TN2199	
Analog Central Office (CO) Trunk (no PPM *)		TN747B					TN747Bv12	TN2199	
Analog Central Office (CO) Trunk (w/PPM *)							TN465C	TN465B	TN465
4 Wire Tie Trunk		TN760D					TN760Dv11		
2 Wire Tie Trunk									
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk							TN464F		
Digital Tie Trunk		TN464F	TN464E	TN464D			TN464F		
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		Not Applicable					Not Applicable		
8 port Analog Line		TN742							
16 port Analog Line		TN746B					TN746B		

Table D-15. Poland and Russia

	Poland				Russia		
4 Wire Digital Line	TN754B				TN754B		
2 Wire Digital Line	TN2181	TN2136			TN2181	TN2136	
Data Line	TN726B				TN726B		

*PPM means Periodic Pulse Metering.

Table D-16. Saudi Arabia

	Saudi Arabia				
Tone Detector	TN744C	TN2182	TN748D		
Tone-Clock	TN2182	TN780	TN756		
Call Classifier	TN744C	TN2182	TN744B		
R2MFC Circuit	TN744C	TN2182	TN744B		
Speech Synthesizer	TN725B				
Announcement	TN750C	TN750B			
Auxiliary Trunk	TN763D	TN763C			
Analog Direct Inward Dialed (DID) Trunk	TN753				
Analog Central Office (CO) Trunk (no PPM *)	TN747B				
Analog Central Office (CO) Trunk (w/PPM *)					
4 Wire Tie Trunk	TN760D				
2 Wire Tie Trunk					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk	TN464F				
Digital Tie Trunk	TN464F	TN464E	TN464D	TN464C	TN464B
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk	TN464F				
8 port Analog Line	TN742				
16 port Analog Line	TN746B				
4 Wire Digital Line	TN754B				
2 Wire Digital Line	TN2181				
Data Line	TN726B				

*PPM means Periodic Pulse Metering.

Table D-17. Singapore

		Singapore			
Tone Detector		TN744C	TN2182	TN748D	
Tone-Clock		TN2182	TN780	TN756	
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		TN744C	TN2182	TN744B	
Speech Synthesizer		TN725B			
Announcement		TN750C	TN750B	TN750	
Auxiliary Trunk		TN763D	TN763C		
Analog Direct Inward Dialed (DID) Trunk		TN753			
Analog Central Office (CO) Trunk (no PPM *)		TN747B			
Analog Central Office (CO) Trunk (w/PPM *)					
4 Wire Tie Trunk		TN760D			
2 Wire Tie Trunk					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		TN464F			
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		TN464F	TN464E	TN464D	TN464C
8 port Analog Line		TN742			
16 port Analog Line		TN746B			
4 Wire Digital Line		TN754B			
2 Wire Digital Line					
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-18. Spain and Taiwan

		Spain				Taiwan				
Tone Detector		TN744C	TN2182	TN420C		TN744C	TN2182	TN748D		
Tone-Clock		TN2182	TN780			TN2182	TN780	TN756		
Call Classifier		TN744C	TN2182	TN744B						
R2MFC Circuit		TN744C	TN2182	TN744Bv2		Not Applicable				

Table D-18. Spain and Taiwan

	Spain			Taiwan				
Speech Synthesizer	TN457			TN725B				
Announcement	TN750C	TN750B		TN750C	TN750B			
Auxiliary Trunk	TN763D			TN763D	TN763C			
Analog Direct Inward Dialed (DID) Trunk	Not Applicable			TN753				
Analog Central Office (CO) Trunk (no PPM *)	TN2147C			TN747B				
Analog Central Office (CO) Trunk (w/PPM *)	TN465C							
4 Wire Tie Trunk	Not Applicable			TN760D				
2 Wire Tie Trunk	Not Applicable							
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk	TN464F	TN464E						
Digital Tie Trunk	TN464F			TN464F	TN464E	TN464D	TN464C	TN767
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk	TN464F	TN464E		Not Applicable				
8 port Analog Line				TN742				
16 port Analog Line	TN2183	TN2180		TN746B				
4 Wire Digital Line	TN754B			TN754B				
2 Wire Digital Line	TN2181			TN2181				
Data Line	TN726B			TN726B				

*PPM means Periodic Pulse Metering.

Table D-19. United Kingdom

		United Kingdom			
Tone Detector		TN744C	TN2182	TN420C	TN420B
Tone-Clock		TN2182	TN780	TN419B	
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		Not Applicable			
Speech Synthesizer		TN457			
Announcement		TN750C	TN750B		
Auxiliary Trunk		TN763D	TN417		
Analog Direct Inward Dialed (DID) Trunk		TN459B	TN459		
Analog Central Office (CO) Trunk (no PPM *)		TN2147C	TN2147		
Analog Central Office (CO) Trunk (w/PPM *)		TN447			
4 Wire Tie Trunk		TN458			
2 Wire Tie Trunk					
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		TN464F	TN464E	TN464D	
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		TN464F	TN464E	TN464D	
8 port Analog Line		TN467			
16 port Analog Line		TN2183	TN468B	TN468	
4 Wire Digital Line		TN754B	TN413		
2 Wire Digital Line		TN2181			
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Table D-20. Venezuela

		Venezuela			
Tone Detector		TN744C	TN2182	TN748D	
Tone-Clock		TN2182	TN780	TN756	
Call Classifier		TN744C	TN2182	TN744B	
R2MFC Circuit		TN744C	TN2182	TN744B	
Speech Synthesizer		TN725B			
Announcement		TN750C	TN750B	TN750	
Auxiliary Trunk		TN763D	TN763C		
Analog Direct Inward Dialed (DID) Trunk		TN753			
Analog Central Office (CO) Trunk (no PPM *)		TN747B			
Analog Central Office (CO) Trunk (w/PPM *)		TN465C	TN465B		
4 Wire Tie Trunk		TN760D			
2 Wire Tie Trunk		TN439			
Digital Central Office (CO)/Direct Inward Dialed (DID) Trunk		Not Applicable			
Digital Tie Trunk		TN464F	TN464E	TN464D	TN464C
Digital Integrated Services Digital Network (ISDN) Central Office (CO) Trunk		Not Applicable			
8 port Analog Line		TN742			
16 port Analog Line		TN746B			
4 Wire Digital Line		TN754B	TN413		
2 Wire Digital Line		TN2181			
Data Line		TN726B			

*PPM means Periodic Pulse Metering.

Installing the 9400-Series Telephones

E

Installing the 9400-Series Telephones

The following figures provide the basic information to install the 9400-series telephones.

CAUTION:
When this product is located in a separate building from the DEFINITY Communications System, a line current protector MUST be installed at the entry/exit points of all buildings through which the line passes. However, there is a difference between 4-wire and 2-wire installations.

The following are the ONLY acceptable devices for use in a 4-wire installation (note that two protectors are needed at each installation point):

- AT&T 4-type protectors
- ITW LINX™ LP-type protectors

For 2-wire installations, the following is recommended (only one protector is needed at each installation point):

- AT&T 4-type protectors
- ITW LINX™ LP-type protectors

However, if the above two protectors are not used, the following is acceptable in a 2-wire installation:

- AT&T 3BIC (Carbon block) or AT&T 3BEW (gas tube) protectors

NOTE:
The 3BIC and 3BEW protectors can be used *only* for 2-wire installations. They *cannot* be used for 4-wire installations.

These telephones are *not* for residential use. They are for business systems applications only. Use in a residential environment could result in an electrical short circuit when the telephone wiring is set up to provide other applications, for example, for appliance control or power transformers. The AC power used in these applications may create a safety hazard by placing a direct short circuit across the telephone wiring.

Wiring Information

The 9403 and the 9434 telephones work in both 2-wire and 4-wire configurations. The 9410 telephone works *only* in the 2-wire digital communications protocol (DCP) configuration. Wiring is also discussed in Chapter 9, "Install and Wire Telephones and Other Equipment".

Figure E-1 and Figure E-2 show an enlargement of a telephone 8-pin line jack in a 2-wire and a 4-wire configuration, respectively. Table E-1 below these figures describes the pins on this jack.

Figure E-1 shows power requirements in a 2-wire installation. Switch connections must be on pair 1 (Pins 4 and 5).

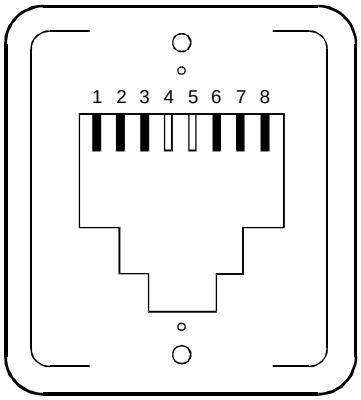


Figure E-1. A Telephone Line Jack in a 2-Wire Configuration

Figure E-2 shows power requirements in a 4-wire installation. Switch connections must be on pair 2 (Pins 1 and 2) and pair 3 (Pins 3 and 6).

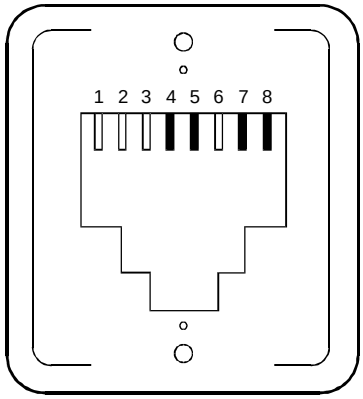


Figure E-2. A Telephone Line Jack in a 4-Wire Configuration

Table E-1. Pinouts on 8-Pin Line Jack

Modular Wall Jack Wiring

Pin	Pair	Color	Description
1	2	W-O	4-Wire Output
2	2	O-W	4-Wire Output
3	3	W-G	4-Wire Input
4	1	BL-W	2-Wire (Tip)
5	1	W-BL	2-Wire (Ring)
6	3	G-W	4-Wire Input
7	4	W-BR	Adjunct Power -48V
8	4	BR-W	Adjunct Power Common

NOTE:
Regardless of configuration, all wiring between the switch and the wall jack must consist of twisted-pairs. Use the supplied line cord with the telephone, or use an AT&T approved equivalent. An 8-wire modular cord *must* be used for all 4-wire and 2-wire installations requiring auxiliary power for adjuncts such as a hands-free speaker/microphone.

NOTE:
Do not change any settings on the telephone for 2-wire or 4-wire installations. The telephone is able to detect whether it is in a 2-wire or a 4-wire configuration.

Distance Limitations

The following are the maximum distances allowed between the system and the 9400-series telephones.

Table E-2. Maximum Distances between system and 9400-Series Telephones

	22-gauge	24-gauge	26-gauge	0.6 mm (Europe)
4-wire	1,500 meters (5,000 feet)	1,500 meters (5,000 feet)	1,200 meters (4,000 feet)	1,500 meters (5,000 feet)
2-wire	1,650 meters (5,500 feet)	1,050 meters (3,500 feet)	650 meters (2,220 feet)	1,350 meters (4,500 feet)

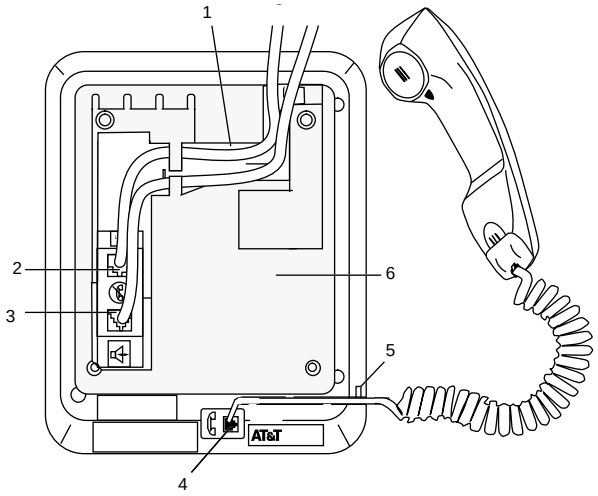


Figure Notes:

1. Routing channel for line cord and adjunct cord
2. LIne Jack
3. Adjunct jack
4. Handset jack
5. Handset cord routing channel
6. Handset jack on the 9410
7. Desktop stand

Figure E-3. Line, Adjunct, and Handset Cord Routing for Desktop Installation on the 9403 and 9410 Telephones

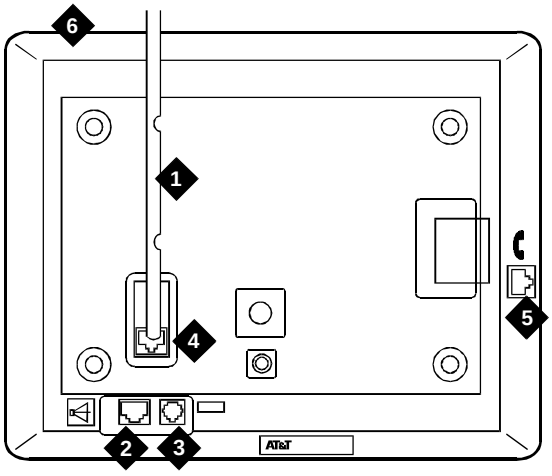


Figure Notes:

1. Routing channel
2. Adjunct jack
3. LIne Jack
4. Expansion Module Jack
5. HandsetJjack
6. Bottom of 9434 Telephone

Figure E-4. Line, Adjunct, Handset, and Expansion Module Cord Routing on the 9434 Telephone

Wall Mounting

Only the 9403 and the 9410 can be wall mounted, as shown below in Figure E-4, Figure E-5, Figure E-6, Figure E-7, and Figure E-8.

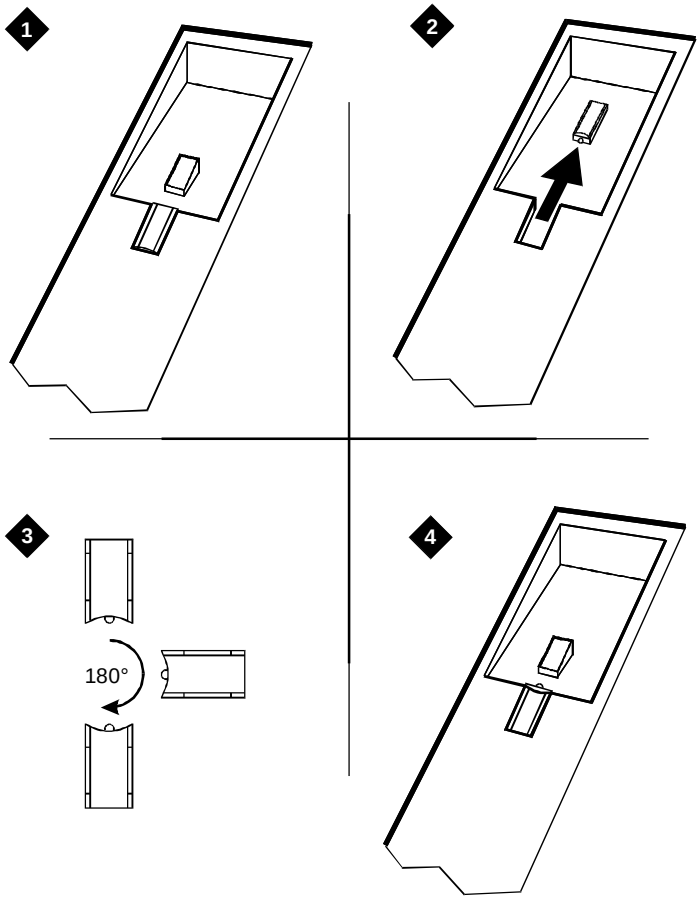


Figure Notes:

1. Hand Retainer in Place
2. Press to Release and Remove Handset Retainer
3. Rotate Handset 180 Degrees
4. Replace Handset Retainer

Figure E-5. Reversing the Handset Hook for Wall Mounting

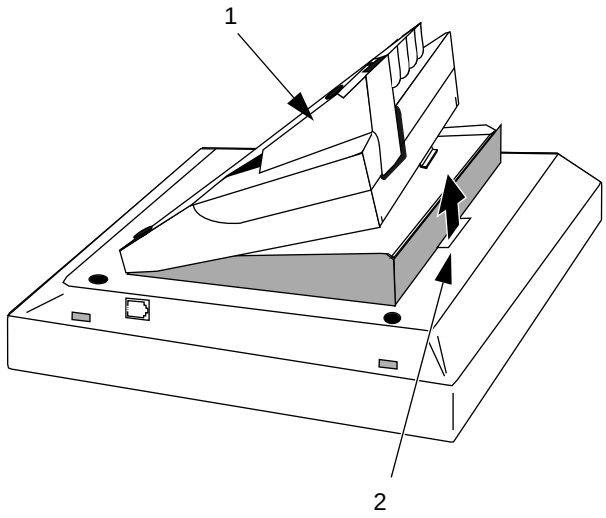


Figure Notes:

1. Desktop stand
2. Desk mount tab slot

Figure E-6. Removing the Desktop Stand for Wall Mounting

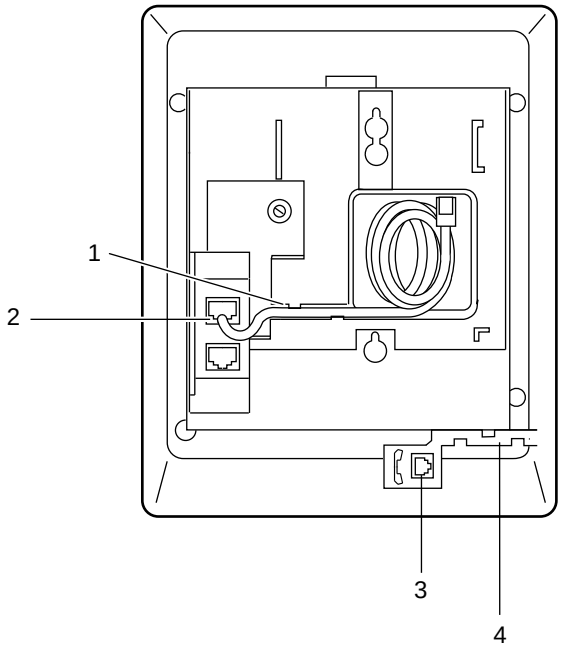


Figure Notes:

1. Line cord routing channel for wall mount
2. Line jack
3. Handset jack
4. Handset cord routing channel

Figure E-7. Line Cord Routing for Wall Mount

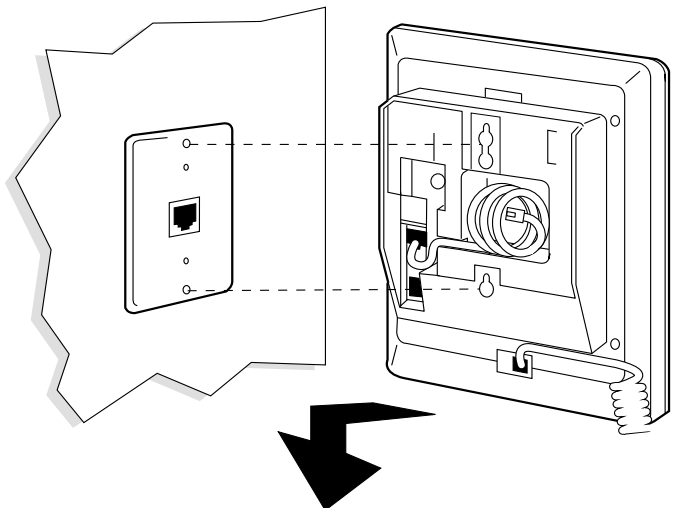


Figure E-8. Placing the Telephone onto Wall Jack Mounting Studs

Using the Test Feature

When the telephone is initially powered up, the green light next to the TEST button flashes if the telephone is not (or not yet) able to communicate with the switch. The light changes to steady green when the switch link is operational. After a short period of time, the light turns off in order to conserve power.

NOTE:
If the light next to TEST does not come on, the telephone is not receiving power from the switch.

The Test Feature

To test the lights and the display on your telephone:

5. While on-hook, press and hold down TEST.
   - Green light next to TEST goes on.

     NOTE:
     If the green light next to TEST flashes rather than going on steadily, it means that the telephone is not able to communicate with the switch.

- The button lights on your telephone go on (and, if the terminal has a display, all the display segments fill in):
  - — On the 9403, all the lights go on together.
  - — On the 9410, the lights go on in two groups, and the display fills in all the segments.
  - — On the 9434, the lights go on in four groups, and the display fills in all the segments.

6. Release TEST to end the test.
   - Lights return to pretest state.
   - Green light next to TEST goes off.

NOTE:
You can test the tone ringer on your telephone by pressing either side of the volume control button when the handset is on-hook and the speaker is not in use.

Button Labels

The following buttons appear on the 9400-series telephones. The button labels in this table are provided in English and French.

Table E-3. Button Labels for 9400-Series Telephones.

English Button Labels	French Button Labels
Volume	
Shift/Feature	2nd F
Test	Test
Mute	Secret
Speaker	
Transfer	Trans
Conf	Conf
Drop	Lib
Hold	Attente

Wire Conversion Information

F

This appendix provides some wire conversion information that may be useful when following the installation instructions provided in this book.

Common Wire Colours

Table F-1 lists common wires types and colours for power (AC Mains):

Table F-1. Standard Wire Colours for Power (AC Mains)

Wire Type	United States	Europe
Neutral or Telecommunications Ground	White	Blue
Hot	Black	Black or Brown
Ground	Green, or Green with Yellow Stripe	Green with Yellow Stripe
Tip	Green	
Ring	Red	

AWG to SWG Conversion (Stranded Wire)

The following table provides conversion information from American Wire Gauge (AWG) to British (Imperial) Standard Wire Gauge (SWG). It also includes metric sizes.

Table F-2. Stranded Wire Conversion (AWG to SWG to metric)

Square Millimeters	Number and Diameter of Strands Millimeters	Corresponding AWG
0.014	7 x 0.05	--
0.035	7 x 0.08	--
0.047	24 x 0.05	--
0.049	1 x 0.25	--
0.055	7 x 0.10	--
0.079	10 x 0.10	28
0.079	7 x 0.12	28
0.080	1 x 0.32	28
0.093	7 x 0.13	--
0.094	12 x 0.10	--
0.094	48 x 0.05	--
0.096	19 x 0.08	--
0.113	10 x 0.12	--
0.118	60 x 0.05	--
0.118	15 x 0.10	--
0.124	7 x 0.15	--
0.126	1 x 0.40	26
0.149	19 x 0.10	--
0.177	10 x 0.15	--
0.188	24 x 0.10	--
0.196	1 x 0.50	--
0.212	27 x 0.10	--
0.212	12 x 0.15	--
0.220	7 x 0.20	--
0.251	32 x 0.10	--
0.252	19 x 0.13	--
0.283	1 x 0.60	--
0.291	37 x 0.10	--
0.314	40 x 0.10	--
0.322	1 x 0.64	22
0.336	19 x 0.15	22
0.344	7 x 0.25	--
0.377	12 x 0.20	--

Table F-2. Stranded Wire Conversion (AWG to SWG to metric)

Square Millimeters	Number and Diameter of Strands Millimeters	Corresponding AWG
0.377	48 x 0.10	--
0.389	22 x 0.15	--
0.442	1 x 0.75	--
0.459	26 x 0.15	--
0.491	10 x 0.25	--
0.495	7 x 0.30	--
0.503	16 x 0.20	--
0.515	1 x 0.81	20
0.563	7 x 0.32	--
0.597	19 x 0.20	--
0.636	36 x 0.15	--
0.754	24 x 0.20	--
0.785	16 x 0.25	--
0.817	1 x 1.02	18
0.848	12 x 0.30	--
0.880	7 x 0.40	--
0.933	19 x 0.25	--
0.990	56 x 0.15	--
1.005	32 x 0.20	--
1.276	26 x 0.25	--
1.327	1 x 1.30	16
1.343	19 x 0.30	--
1.374	7 x 0.50	--
1.473	30 x 0.25	--
1.508	12 x 0.40	--
1.828	19 x 0.35	--
1.885	60 x 0.20	--
1.909	27 x 0.30	--
1.979	7 x 0.60	--
2.011	16 x 0.40	--
2.013	41 x 0.25	--
2.087	1 x 1.63	14
2.454	50 x 0.25	--

Table F-2. Stranded Wire Conversion (AWG to SWG to metric)

Square Millimeters	Number and Diameter of Strands Millimeters	Corresponding AWG
3.022	19 x 0.45	--
3.142	16 x 0.50	--
3.181	45 x 0.30	--
3.191	65 x 0.25	--
3.393	48 x 0.30	12
3.958	56 x 0.30	--
4.650	37 x 0.40	--
4.714	7 x 7 x 0.35	--
5.154	105 x 0.25	--
5.160	73 x 0.30	10
5.300	75 x 0.30	10

Wire Gauge Comparison (Solid Conductor)

Table F-3 provides information for converting American Wire Gauge (AWG) to British Standard Wire Gauge (Imperial), in addition to metric wire gauge.

Table F-3. Solid Conductor Wire Gauge Comparison (AWG to SWG to metric)

Diameter (Mils)	Gauge Numbers (mm)	American Wire Gauge (AWG)	British Standard Wire Gauge (Imperial)	Metric Wire Gauge
460.1	11.68	4/0	--	--
432	11.0	--	5/0	--
409.6	10.40	3/0	--	--
400	10.2	--	4/0	--
393.7	10.0	--	--	100
372	9.45	--	3/0	--
364.8	9.266	2/0	--	--
354	9.00	--	--	90
348	8.84	--	2/0	--
324.9	8.252	1/0	--	--
324	8.23	--	1/0	--
315	8.00	--	--	80
300	7.62	--	1	--
289.3	7.348	1	--	--
276	7.01	--	2	--
276	7.00	--	--	70
257.6	6.543	2	--	--
252	6.40	--	3	--
236	6.00	--	--	60
232	5.89	--	4	--
229.4	5.827	3	--	--
212	5.38	--	5	--
204.3	5.189	4	--	--
197	5.00	--	--	50
192	4.88	--	6	--
181.9	4.620	5	--	--
177.2	4.50	--	--	45
176	4.47	--	7	--
162.0	4.115	6	--	--
160	4.06	--	8	--
157	4.00	--	--	40
144.3	3.665	7	--	--
144	3.66	--	9	--

Table F-3. Solid Conductor Wire Gauge Comparison (AWG to SWG to metric)

Diameter (Mils)	Gauge Numbers (mm)	American Wire Gauge (AWG)	British Standard Wire Gauge (Imperial)	Metric Wire Gauge
138	3.50	--	--	35
128.5	3.264	8	--	--
128	3.25	--	10	--
118	3.00	--	--	30
116	2.95	--	11	--
114.4	2.906	9	--	--
104	2.64	--	12	--
101.9	2.588	10	--	--
98.4	2.50	--	--	25
92	2.34	--	13	--
90.7	2.30	11	--	--
80.8	2.05	12	--	--
80.0	2.03	--	14	--
78.7	2.00	--	--	20
72.0	1.83	13	15	--
70.9	1.80	--	--	18
64.1	1.63	14	--	--
64	1.63	--	16	--
63	1.60	--	--	16
57.1	1.45	15	--	--
56	1.42	--	17	--
55.1	1.40	--	--	14
50.8	1.29	16	--	--
48	1.22	--	18	--
47.2	1.20	--	--	12
45.3	1.15	17	--	--
40.3	1.02	18	--	--
40	1.02	--	19	--
39.4	1.00	--	--	10
36	0.914	--	20	--
35.9	0.912	19	--	--
35.4	0.90	--	--	9.0
32.0	0.813	20	21	--
31.5	0.800	--	--	8.0
28.5	0.724	21	--	--

Table F-3. Solid Conductor Wire Gauge Comparison (AWG to SWG to metric)

Diameter (Mils)	Gauge Numbers (mm)	American Wire Gauge (AWG)	British Standard Wire Gauge (Imperial)	Metric Wire Gauge
28	0.711	--	22	--
27.6	0.70	--	--	7.0
25.3	0.643	22	--	--
24	0.610	--	23	--
23.6	0.60	--	--	6.0
22.6	0.574	23	--	--
22	0.559	--	24	--
20.1	0.511	24	--	--
20	0.508	--	25	--
19.7	0.50	--	--	5.0
18	0.457	--	26	--
17.9	0.455	25	--	--
17.7	0.45	--	--	4.5
16.4	0.417	--	27	--
15.9	0.404	26	--	--

Electrical Code Equivalencies

G

This appendix lists electrical code information that applies to countries outside of North America.

North American Electrical Code

In North America, the standard electrical code that must be followed is called the National Electrical Code (NEC). When installing DEFINITY System G3, you must determine the equivalent code in your country.

International Electrical Codes

The following chart lists the regulatory electrical codes in applicable countries:

Table G-1. International Electrical Codes

Country	Electrical Code/Regulations
Australia	
Belgium	
China	
France	
Germany	DIN/VDE Bestimmungen
Italy	
Japan	
Macedonia	
Malaysia	
Netherlands	
Spain	
Thailand	
United Kingdom	
United States	National Electrical Code (NEC)

Option Switch Settings

H

Some of the interface units used between the single-carrier and multi-carrier cabinets and other types of equipment require specific option switch settings for each application. This section lists the option switch settings required for modular processor data modules, modular trunk data modules, modems, printers, etc., when these units are used with the switch. Only the option switch settings for use with single-carrier or multi-carrier cabinets are shown. Refer to the User Guide on each type of equipment for information on how to locate and set the option switches.

Distributed Communications System (DCS) Option Settings for G3i Systems

The distributed communications system (DCS) is sometimes connected to the switch through the processor interface circuit pack. The first circuit on the processor interface can be connected directly to the distributed communications system (DCS) through the **PROCESSOR INTERFACE** connector on the rear of the control carrier. Any of the remaining three circuits on the processor interface used to support the distributed communications system (DCS) must be

connected through a modular processor data module serving as the interface link. The option settings for the modular processor data module (MPDM) in this application are shown in Table H-1.

Table H-1. Option Switch Settings on the Modular Processor Data Module for the Distributed Communications System

Switch	Setting
9600 BAUD	ON
SYNC	ON
INT	ON
KYBD	ON
AANS	ON
All Others	OFF

Modem Pooling (Combined) Option Settings

Combined Modem Pooling requires option switch settings on different modems and modular trunk data modules. The following paragraphs describe the option settings for each application.

103JR Modem Option Settings

When the 103JR modem is used with a modular trunk data module, set the options on the modular trunk data module as shown in Table H-2. Options for the 103JR modem are shown in Table H-3. When used for modem pooling, all factory-furnished options on the modem are used.

Table H-2. Option Switch Settings on the Modular Trunk Data Module Used With 103JR Modem

Switch	Setting
300 baud	ON
SW	ON
SIGLS	ON
CN25	ON
All Others	OFF

Table H-3. Option Switch Settings for 103JR Modem

Feature		Option	Switch Setting S2 Switch on CM1 Contact Setting						
			1	2	3	4	5	6	7
Receive Space Disconnect	YES	V*	--	--	O	--	--	--	--
Send Space Disconnect	YES	T*	X	--	--	--	--	--	--
Loss of Carrier Disconnect	YES	S*	--	--	--	O	--	--	--
Country Code (CC) Indication	EARLY	ZD*	--	--	--	--	--	--	O
CB and CF Indications	COMMON	A*	--	X	--	--	--	--	--
Country Code (CC) Indication for Analog Loop	ON	ZF*	--	--	--	--	O	--	--
Automatic Answer	YES	ZH*	--	--	--	--	--	O	--
			S3 Switch on CP1 Contact Setting						
			1	2	3				
Fail Safe State of CN Circuit	OFF	J*		O					
Common Ringer	NO	ZA*	O						
Tip-Ring Make Busy	NO	E*			O				
Common Grounds	YES	Q*	Close S1 Screw Switch on Data Mounting						

* = Factory Furnished

X = Contact closed

O = Contact open

-- = Contact not applicable

201CR Modem Option Settings

When the 201CR modem is used with a modular trunk data module, set the options on the modular trunk data module as shown in Table H-4. Options on the 201CR modem are shown in Table H-5. When used for modem pooling, all factory-furnished options are used except option YD must be selected instead of option YC and option YS must be selected instead of option YT.

Table H-4. Option Switch Settings on Modular Trunk Data Module Used With 201CR Modem

Switch	Setting
2400 baud	ON
SW	ON
SIGLS	ON
SYNC	ON
HDX	ON
CN18	
All Others	OFF

Table H-5. Options Switch Settings for 201 CR Modem

Option			Line Control Board (TP1B)								
Description		Designation	Strap In (Vertical)					Strap Out (Horizontal)			
Transmit Line Signal Level	-4 dBm	ZE*						1,2,4,8			
			Switch Setting								Digital Board (JB4B)
			1	2	3	4	5	6	7	8	
Transmitter Timing	External	YD					O				
Automatic Answer	DTR-Controlled Only	YF*								X	
Grounding	Signal Ground Connected to Frame Ground	YK*									Install E1-E2
Function of Electronic Industries Association Interface Pin 18	Initiates Analog Receiver	YS				X					Install E3-E4
Continuous Receiver Bit Clock	Out	YP*							X		
Satellite	In	YQ*			X						

* = Factory furnished

X =Closed

O =Open

202SR Modem Option Settings

When the 202SR modem is used with a modular trunk data module, set the options on the modular trunk data module as shown in Table H-6. Options on the 202SR modem are shown in Table H-7. When used for modem pooling, all factory-furnished options are used except option YI must be selected instead of option YJ.

Table H-6. Option Switch Settings on Modular Trunk Data Module Used With 202SR Modem

Switch	Setting
1200 baud	ON
SW	ON
SIGLS	ON
HDX	ON
All Others	OFF

Table H-7. Option Switch Settings for 202SR Modem

Option		Output level dBm	S4 Switch Contact Setting On Transmitter-Receiver													
			Without Reverse Channel							With Reverse Channel						
Description	**Designation**		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Transmit Line Signal Level	ZO*	-4	X	X	X	X	X	X	X	X	X	X	X	X	X	X

		Soft Turnoff	Squelch	S2 Switch Contact Setting On Transmitter-Receiver									
				1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**0**
Soft Turnoff and Squelch Intervals	R*	24 milli-seconds	156 milliseconds	--	X	X	--	--	--	--	O	--	O
Fast Carrier Detection	N*	Out (23 milliseconds)		--	--	--	--	--	--	X	--	--	--
Clear to Send Interval	G*	180 milliseconds		--	--	--	X	X	--	--	--	--	--
Automatic Answer	B*	In		X	--	--	--	--	--	--	--	--	--
Local Copy on Primary Channel	ZB*	Out		--	--	--	--	--	X	--	--	--	--
Condition of Country Code (Data Set Ready) During Analog Loopback	YI	On		--	--	--	--	--	--	--	--	X	--

			S3 Switch Contact Setting					
			1	**2**	**3**	**4**	**5**	**6**
Reverse Channel	ZD*	Out	X	X	--	--	--	--

X =Contact closed

-- = Contact not applicable

O = Contact open

* = Factory furnished

Continued on next page

Table H-7. Option Switch Settings for 202SR Modem — *Continued*

Option			S3 Switch Contact Setting						
Description	**Designation**		**1**	**2**	**3**	**4**	**5**	**6**	
Transmit Only	YH*	Out	--	--	O	--	--	--	
Echo Suppressor Enable	YR*	Out	--	--	--	X	--	--	
Carrier Controlled Turnaround	YS*	In	--	--	--	--	--	O	
Early Country Code (Data Set Ready) Indication	YV*	Out	--	--	--	--	X	--	
Grounding Option			**Screw Switch Setting On Interface Circuit**						
	ZG*	Signal Ground Connected to Frame Ground	Screw Switch S1 Closed on Data Mounting						

X =Contact closed

-- = Contact not applicable

O = Contact open

* = Factory furnished

208BR Modem Option Settings

When the 208BR modem is used with a modular trunk data module, set the options on the modular trunk data module as shown in Table H-8. Options for the 208BR modem are shown in Table H-9. When used for modem pooling, all factory-furnished options are used except option YD must be selected instead of option YC, and option YM must be selected instead of option YN.

Table H-8. Option Switch Settings on Modular Trunk Data Module Used With 208BR Modem

Switch	Setting
4800 baud	ON
SW	ON
SIGLS	ON
SYNC	ON
HDX	ON
All Others	OFF

Table H-9. Option Switch Settings for 208BR Modem

Option		Output Level dBm	Switch			
Description	**Designation**		**S1A**	**S1B**	**S1C**	**S2A**
Transmit Line Signal Level	ZE*	-4	DOWN	UP	DOWN	UP
		Switch	**Option Strap Position**			
Compromise Equalizer (4-dB Slope)	WU*	S2B	Up			
		S2C	Up			
Data Set Ready (DSR) on for Analog Loop Mode	YM	S3A	Up			
Automatic Answer	YP*	S3B	Down			
Transmitter Externally Timed	YD	S3C	Up			
		S4A**	Up			
			Down*			
		S4B**	Up			
			Down*			
RS-CS Interval of 50 milliseconds	(Customer Switch)	50	In			
RS-CS Interval of 150 milliseconds			Out			

* Factory installed ** Down position must be selected

Asynchronous 212AR Modem Option Settings

When the asynchronous 212AR modem is used with a modular trunk data module, set the options on the modular trunk data module as shown in Table H-10. Options on the asynchronous 212AR modem are shown in Table H-11. When used for modem pooling, all factory-furnished options are used with the following exceptions:

- Select option XJ instead of option XK.
- Select option YE instead of option YF.
- Select option XL instead of option XM.
- Select option YQ instead of option YR.
- Select option XR instead of option XO.

Table H-10. Option Switch Settings on Modular Trunk Data Module (MTDM) Used With 212AR Modem

Switch	Setting
300 baud	ON
1200 baud	ON
SW	ON
SIGLS	ON
CI12	ON
TM25	ON
CN18	ON
CH23	ON
RL21	ON
All Others	OFF

Table H-11. Option Switch Settings for Asynchronous 212AR Modem

Feature	Option	Description	Switch Setting										
			S1 Switch Controls										
			1	2	3								
Tip, Ring, Make Busy	E*	OUT	O	--	--								
Country Code (CC) Indication for Analog Loop	ZF*	ON	--	--	X								
			Switch Contacts										
			S2									S5	
			1	2	3	4	5	6	7	8	9	1	2
Speed Control	XJ	INTERFACE	O	--	--	--	--	--	--	--	--		
Interface-Controlled Make Busy/ Analog Loop-CN	YE	IN	--	O	--	--	--	--	--	--	--		
Transmitter Timing	YC*	INTERNAL	--	--	O	O	--	--	--	--	--		
1200-bps Operation	YG*	ASYNCHRONOUS/ START-STOP	--	--	--	--	O	--	--	--	--	O	O
Character Length (Use With YG)	YJ*	10-BIT	--	--	--	--	--	X	--	--	--		
Receiver Responds to Digital Loop	YK*	IN	--	--	--	--	--	--	O	--	--		
Interface Controlled Remote Digital Loop	XL	IN	--	--	--	--	--	--	--	X	--		
			S3 Switch Contacts										
			1	2	3	4	5	6	7	8			
Loss of Carrier Disconnect	S*	IN	X	--	--	--	--	--	--	--			
Receive Space Disconnect	V*	IN	--	X	--	--	--	--	--	--			

* = Factory furnished X = Contact closed

O = Contact open -- = Contact not applicable

Continued on next page

Table H-11. Option Switch Settings for Asynchronous 212AR Modem — *Continued*

Feature	Option	Description	Switch Setting							
			S3 Switch Contacts							
			1	2	3	4	5	6	7	8
CB and CF Indications	A*	COMMON	--	--	X	--	--	--	--	--
Send Space Disconnect	T*	IN	--	--	--	X	--	--	--	--
Automatic Answer	ZH*	IN	--	--	--	--	X	--	--	--
Answer Mode Indication	W*	CE OFF	--	--	--	--	--	O	--	--
Speed Mode	YP*	DUAL	--	--	--	--	--	--	O	--
Interface Speed Indication Clock Input	YQ	IN	--	--	--	--	--	--	--	X
			Strapping Options							
CN and Test Mode Assignments	XR	CN 18, TM 25	INSTALL E2 - E3, E4 - E5							
Signal Ground to Frame Connection	Q*	IN	S1 CLOSED							

* = Factory furnished X = Contact closed

O = Contact open -- = Contact not applicable

Synchronous 212AR Modem Option Settings

When the synchronous 212AR modem is used with a modular trunk data module (MTDM), set the options on the modular trunk data module (MTDM) as shown in Table H-10. Options on the synchronous 212AR modem are shown in Table H-12. When used for modem pooling, all factory-furnished options are used with the following exceptions:

- Select option YH instead of option YG.
- Select option YO instead of option YP.
- Select option YD instead of option YC
- Select option YE instead of option YF.
- Select option XL instead of option XM.
- Select option XR instead of option XO.

Table H-12. Option Switch Settings for Synchronous 212AR Modem

Feature	Option	Description	Switch Setting										
			S1 Switch Contacts										
			1	2	3								
Tip, Ring, Make Busy	E*	OUT	O	--	--								
Country Code (CC) Indication for Analog Loop	ZF*	ON	--	--	X								
			Switch Contacts										
			S2									S5	
			1	2	3	4	5	6	7	8	9	1	2
Speed Control	XK*	HS BUTTON	X	--	--	--	--	--	--	--	--		
Interface-Controlled Make Busy/ Analog Loop-CN	YE	IN	--	O	--	--	--	--	--	--	--		
Transmitter Timing	YD	EXTERNAL	--	--	O	X	--	--	--	--	--		
1200-bps Operation	YH*	SYNCHRONOUS	--	--	--	--	X	--	--	--	--	X	X
Character Length (Use With YG)	YJ*	10-BIT	--	--	--	--	--	X	--	--	--		
Receiver Responds to Digital Loop	YK*	IN	--	--	--	--	--	--	O	--	--		
Interface Controlled Remote Digital Loop	XL	IN	--	--	--	--	--	--	--	X	--		
			S3 Switch Settings										
			1	2	3	4	5	6	7	8			
Loss of Carrier Disconnect	S*	IN	X	--	--	--	--	--	--	--			
Receive Space Disconnect	V*	IN	--	X	--	--	--	--	--	--			

* = Factory furnished X = Contact closed

O = Contact open -- = Contact not applicable

Continued on next page

Table H-12. Option Switch Settings for Synchronous 212AR Modem — *Continued*

Feature	Option	Description	Switch Setting							
			S3 Switch Contacts							
			1	2	3	4	5	6	7	8
CB and CF Indications	A*	COMMON	--	--	X	--	--	--	--	--
Send Space Disconnect	T*	IN	--	--	--	X	--	--	--	--
Automatic Answer	ZH*	IN	--	--	--	--	X	--	--	--
Answer Mode Indication	W*	CE OFF	--	--	--	--	--	O	--	--
Speed Mode	YO	HUGH	--	--	--	--	--	--	X	--
Interface Speed Indication Clock Input (CI)	YR*	OUT	--	--	--	--	--	--	--	O
			Strapping Options							
CN and Test Mode (TM) Assignments	XR	CN 18, TM 25	INSTALL E2 - E3, E4 - E5							
Signal Ground to Frame Connection	Q*	IN	S1 CLOSED							

* = Factory furnished X = Contact closed

O = Contact open -- = Contact not applicable

Asynchronous 2224A Modem Option Settings

When the asynchronous 2224A modem is used with a modular trunk data module (MTDM), set the options on the modular trunk data module (MTDM) as shown in Table H-13. The asynchronous 2224A modem can also be used for modem pooling.

All factory-furnished options should be set on the 2224A modem with the following exceptions:

- Interface speed indication—TRIPLE
- Interface speed selection—TRIPLE
- Analog (AL) and Test Mode interface assignments—AL-18 and TM-25
- Interface control remote digital loopback—IN

Table H-13. Option Switch Settings on Modular Trunk Data Module (MTDM) Used with Asynchronous 2224A Modem

Switch	Setting
300 baud	ON
1200 baud	ON
2400 baud	ON
SW	ON
SIGLS	ON
CI12	ON
TM25	ON
CN18	ON
CH23	ON
RL21	ON
CI13	ON
CH19	ON
All Others	OFF

Synchronous 2224A Modem Option Settings

When the synchronous 2224A modem is used with a modular trunk data module, set the options on the modular trunk data module as shown in Table H-14. All factory-furnished options should be set on the 2224A modem with the following exceptions:

- Interface speed indication—DUAL-1200/2400
- Interface speed selection—DUAL-1200/2400
- Analog (AL) and Test Mode interface assignments—AL-18 and TM-25
- Interface control remote digital loopback—IN
- 1200/2400 bps operation—SYNC
- Transmitter timing—EXT

Table H-14. Option Switch Settings on Modular Trunk Data Module (MTDM) Used with Synchronous 2224A Modem

Switch	Setting
1200 baud	ON
2400 baud	ON
SW	ON
SIGLS	ON
CI12	ON
TM25	ON
CN18	ON
CH23	ON
RL21	ON
SYNC	ON
CH19	ON
All Others	OFF

7400A Option Settings

Determine if the 7400A will be interfacing with D-lead modems or attention control modems. Use Table H-15 to set the options to interface with D lead modems and Table H-16 to set the options to interface with attention control modems.

Table H-15. 7400A Options for D Lead Modems

Set Option Display	Option	Desired Setting
Set 300 Speed?	300	Note 1
Set 1200 Speed?	1200	Note 1
Set 2400 Speed?	2400	Note 1
Set 4800 Speed?	4800	Note 1
Set 9600 Speed?	9600	Note 1
Set 19200 Speed?	19200	Note 1
Set AT Control?	AT	OFF
Set CI Lead?	CI	Note 2
Set CI2 Lead?	CI2	Note 2
Set CH Lead?	CH	Note 2
Set CH2 Lead?	CH2	Note 2
Set LL Lead?	LL	Note 2
Set REMOTE Loop?	REMLOOP	Grant
Set RL Lead?	RL	Note 2
Set SIGLS Disc?	SIGLS DISC	ON
Set TM Lead?	TM	Note 2

Notes:

1. Set speed to match remote modem. At least one speed must be set to ON.
2. Set to match remote modem.

Table H-16. 7400A Options—Attention Control Modems

Set Option Display	Option	Desired Setting
Set 300 Speed?	300	Note 1
Set 1200 Speed?	1200	Note 1
Set 2400 Speed?	2400	Note 1
Set 4800 Speed?	4800	Note 1
Set 9600 Speed?	9600	Note 1
Set 19200 Speed?	19200	Note 1
Set AT Control?	AT	ON
Set CI Lead?	CI	Note 2
Set CI2 Lead?	CI2	Note 2
Set CH Lead	CH	Note 2
Set CH2 Lead?	CH2	Note 2
Set LL Lead?	LL	Note 2
Set REMOTE Loop?	REMLOOP	Grant
Set RL Lead?	RL	Note 2
Set SIGLS Disc?	SIGLS DISC	ON
Set TM Lead?	TM	Note 2

Notes:

1. Set speed to match remote modem. At least one speed must be set to ON.
2. Set to match remote modem.

Printer Option Settings

Printers can be used with a DEFINITY System G3 Management Terminal, as journal printers for the hospitality feature, and also as an output receiving device for Station Message Detail Recording (SMDR). The printers covered are the 470, 471, 475, 476, and 572. The 475 printer is currently being replaced by the 572.

475 Printer Connected to a G3 Management Terminal

The 475 printer can be connected to a G3 Management Terminal to provide hard copies of administration data. It can also be used as an output receiving device for station message detail recording. In each case, the printer option switch settings are the same. Table H-17 shows the option switch settings for the 475 printer when it is used in these applications.

475 Printer Used as System Printer

The 475 printer can be connected to the DEFINITY System G3 as the system printer to be used by the Report Scheduler. Table H-18 shows the option switch settings for the 475 printer as a system printer.

475 or 476 Printer Used as Journal Printer for Hospitality Feature

The 475 or 476 printer can also be used as a journal printer to support the hospitality feature. Table H-19 shows the option switch settings for the 475 and 476 printers in this application.

When modular processor data module or modular trunk data module are used with the 475 or 476 journal printers, the option switches on the modular processor data module or modular trunk data module must be set as shown Table H-20.

Table H-17. Option Switch Settings for 475 Printer Connected to Management Terminal or used for Station Message Detail Recording (SMDR)

Section	Setting	Description
Switch 1		
1	OFF	Character Set
2	ON	
3	OFF	
4	OFF	
5	OFF	DC1 and DC3
6	ON	Line Feed
7	ON	Print Command Mode
8	OFF	LF on CR
Switch 2		
1	OFF	Numeric Display of Zero
2	OFF	Buffer Selection
3	OFF	TOF-to-TOF
4	OFF	Power on Line Feed Pitch
5	OFF	Power on Character Pitch
6	ON	Selection on 7 or 8 Bit Data
7	ON	Power on Off-Line or Ready
8	OFF	Uni- or Bi-Directional Printing
Switch 21		
1	OFF	Number of Stop Bits
2	OFF	Select SD
3	OFF	Parity
4	ON	
5	OFF	Not Ready
6	OFF	7-Bit or 8-Bit Data
7	OFF	X/ON X/OFF
8	ON	

Continued on next page

Table H-17. Option Switch Settings for 475 Printer Connected to Management Terminal or used for Station Message Detail Recording (SMDR) —

Section	Setting	Description
Switch 22		
1	OFF	Baud Rate*
2	ON	
3	ON	
4	OFF	Not Used
Switch 23		
1	ON	RS232
2	OFF	
3	OFF	Use of DSR
4	OFF	
5	ON	
6	OFF	Not Used
Switch 24		
1	OFF	Select DTR Timing
2	ON	
3	ON	Select RTS Timing
4	OFF	
5	OFF	Use of CTS
6	ON	
7	OFF	
8	ON	

* The Baud Rate Default is 1200 baud. Any speed can be used, but the speed of the printer and any connection device used must match.

Table H-18. Option Switch Settings for 475 Printer Connected as System Printer

Section	Setting	Description
Switch 1		
1	ON	Character Set
2	ON	
3	OFF	
4	ON	
5	ON	DC1 and DC3
6	OFF	Line Feed
7	OFF	Print Command Mode
8	ON	LF on CR
Switch 2		
1	OFF	Numeric Display of Zero
2	OFF	Buffer Selection
3	OFF	TOF-to-TOF
4	OFF	Power on Line Feed Pitch
5	OFF	Power on Character Pitch
6	OFF	Selection on 7 or 8 Bit Data
7	ON	Power on Off-Line or Ready
8	OPEN	Uni- or Bi-Directional Printing
Switch 21		
1	OFF	Number of Stop Bits
2	OFF	Select SD
3	OFF	Parity
4	OFF	
5	ON	Not Ready
6	ON	7-Bit or 8-Bit Data
7	ON	X/ON X/OFF
8	OFF	

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Table H-18. Option Switch Settings for 475 Printer Connected as System Printer —

Section	Setting	Description
Switch 22		
1	OFF	Baud Rate*
2	ON	
3	ON	
4	OFF	Not Used
Switch 23		
1	ON	RS232
2	OFF	
3	OFF	Use of DSR
4	OFF	
5	ON	
6	OFF	Not Used
Switch 24		
1	ON	Select DTR Timing
2	ON	
3	OFF	Select RTS Timing
4	ON	
5	ON	Use of CTS
6	OFF	
7	OFF	
8	ON	

* The Baud Rate Default is 1200 baud. Any speed can be used, but the speed of the printer and any connection device used must match.

Table H-19. Option Switch Settings for a 475 or 476 Journal Printer

Section	Setting	Description
Switch 1		
1	OFF	Character Set
2	ON	
3	OFF	
4	OFF	
5	OFF	DC1 and DC3
6	ON	Line Feed
7	ON	Print Command Mode
8	OFF	LF on CR
Switch 2		
1	OFF	Numeric Display of Zero
2	OFF	Buffer Selection
3	OFF	TOF-to-TOF
4	OFF	Power on Line Feed Pitch
5	OFF	Power on Character Pitch
6	ON	Selection on 7 or 8 Bit Data
7	ON	Power on Off-Line or Ready
8	OFF	Uni- or Bi-Directional Printing
Switch 21		
1	OFF	Number of Stop Bits
2	OFF	Select SD
3	OFF	Parity
4	ON	
5	OFF	Not Ready
6	OFF	7-Bit or 8-Bit Data
7	OFF	X/ON X/OFF
8	ON	

Continued on next page

Table H-19. Option Switch Settings for a 475 or 476 Journal Printer — *Continued*

Section	Setting	Description
Switch 22		
1	OFF	Baud Rate
2	OFF	
3	OFF	
4	OFF	Not Used
Switch 23		
1	ON	RS232
2	OFF	
3	OFF	Use of DSR
4	OFF	
5	ON	
6	OFF	Not Used
Switch 24		
1	OFF	Select DTR Timing
2	ON	
3	ON	Select RTS Timing
4	OFF	
5	OFF	Use of CTS
6	ON	
7	OFF	
8	ON	

Table H-20. Option Switch Settings on Modular Processor Data Module (MPDM) or Modular Trunk Data Module (MTDM) for 475 or 476 Journal Printer

Switch	Setting
SELF TEST	OFF
LOC LOOP/REM LOOP	OFF
1200 BAUD	ON
AANS (modular processor data module only)	ON
SIGLS	ON
PRTY	ON
I/OD	ON
DISC	ON
KYBD	ON
All Others	OFF

470 or 471 Printer Used as Journal Printer for Hospitality Feature

A printer can be connected to the switch to provide hard copy of hospitality related data. Table H-21 shows the option switch settings for the 470 or 471 printers when they are used in this application.

Table H-21. Option Switch Settings for a 470 or 471 Journal Printer

Section	Setting	Description
Switch 1		
1	OFF	Character Set
2	ON	
3	OFF	
4	OFF	
5	OFF	DC1 and DC3
6	ON	Line Feed
7	ON	Print Command Mode
8	OFF	LF on CR
Switch 2		
1	OFF	Numeric Display of Zero
2	OFF	Buffer Selection
3	OFF	TOF-to-TOF
4	OFF	Power on Line Feed Pitch
5	OFF	Power on Character Pitch
6	ON	Selection on 7 or 8 Bit Data
7	ON	Power on Off-Line or Ready
8	OFF	Uni- or Bi-Directional Printing
Switch 3		
1	ON	Input-Busy to Pin 36
2	OFF	Not Used
3	ON	Logic Ground on Pin 14
4	OFF	Not Used

572 Printer

A 572 printer can function as a G3 Management Terminal, station message detail recording (SMDR), system printer, or journal printer. The options on the 572 printer are set with function keys rather than dual in-line package switches. Figure H-1 shows the arrangement of the function keys on the printer control panel.

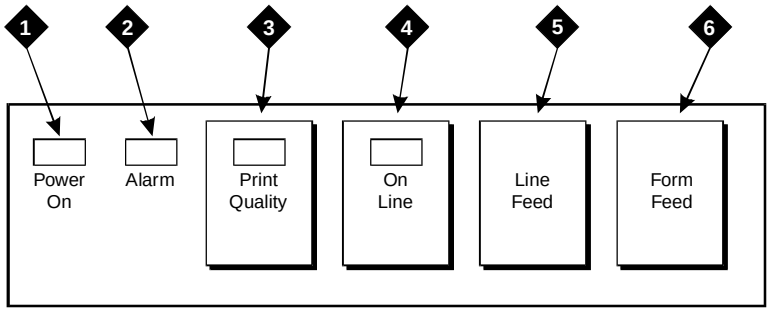


Figure Notes:

1. Power On
2. Alarm
3. Print Quality
4. On Line
5. Line Feed
6. Form Feed

Figure H-1. Control Panel for 572 Printer

NOTE:
Before attempting to set the printer options, ensure that the printer is loaded with paper.

To set the options:

1. Depress **Power On** and **Print Quality** buttons simultaneously. This puts the printer in the set-up mode and it prints the following settings:
   - Form length
   - Lines per inch
   - Characters per inch
   - Letter quality or near letter quality
   - Buzzer on/off

2. If the printer is to be used with the G3 Management Terminal, station message detail recording (SMDR), or as a Journal printer, set the options as shown in Table H-22. If the printer is being used as the system printer, set the options as shown in Table H-23.

    - Use **Line Feed** button to step forward through the list of functions or use **Form Feed** button to step backward

Table H-22. 572 Printer Used with G3 Management Terminal, Station Message Detail Recording (SMDR) or Journal Printer

572 Printer Option Settings			
Function Number	**Function Name**	**Menu Number**	**Menu Status**
01	FORM LENGTH	09	11
02	LPI	01	6
03	CPI	01	10
04	LQ or NLQ	01	LQ
05	BUZZER	01	ON
06	FONT	02	FONTCART
07	RESOLUTION	01	144
11	BUFFER	02	N-LINE
13	PW ON MODE	01	ON-LINE
14	DIRECTION	01	B1-DIR.1
15	BUFF FULL	02	LF + CR
16	P.E.	01	ACTIVE
17	AUTO CARRIAGE RETURN (CR)	01	CR + LF
18	ZERO	01	0
22	AUTO LINE FEED	01	CR ONLY
31	1'' SKIP	01	OFF
32	CHAR.SET (GO, GL)	02	USA
33	CHAR.SET (G1, GR)	01	UK
34	CHAR SET (G2)	03	GE
35	CHAR SET (G3)	07	LINE DRAWING
81	OFF-LINE STATE	01	ALL RECEIVE
82	DSR	02	OFF
83	REQUEST TO SEND TIMING	01	RTS
84	CD	02	OFF
85	CLEAR TO SEND (CTS)	02	OFF
91	OVER RUN	02	256
92	DATA BIT	02	8

Table H-22. 572 Printer Used with G3 Management Terminal, Station Message Detail Recording (SMDR) or Journal Printer

572 Printer Option Settings			
Function Number	**Function Name**	**Menu Number**	**Menu Status**
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS	01	9600

Table H-23. 572 Printer used as System Printer

572 Printer Option Settings			
Function Number	**Function Name**	**Menu Number**	**Menu Status**
01	FORM LENGTH	09	11
02	LPI	01	6
03	CPI	01	10
04	LQ or NLQ	01	LQ
05	BUZZER	01	ON
06	FONT	02	FONTCART
07	RESOLUTION	01	144
11	BUFFER	02	N-LINE
13	PW ON MODE	01	ON-LINE
14	DIRECTION	01	B1-DIR.1
15	BUFF FULL	02	LF + CR
16	P.E.	01	ACTIVE
17	AUTO CARRIAGE RETURN (CR)	01	CR + LF
18	ZERO	01	0
22	AUTO LINE FEED	01	CR ONLY
31	1'' SKIP	01	OFF
32	CHAR.SET (GO, GL)	02	USA
33	CHAR.SET (G1, GR)	01	UK
34	CHAR SET (G2)	03	GE
35	CHAR SET (G3)	07	LINE DRAWING
81	OFF-LINE STATE	01	ALL RECEIVE
82	DSR	02	OFF
83	REQUEST TO SEND (RTS) TIMING	01	RTS
84	CD	02	OFF
85	CLEAR TO SEND (CTS)	02	OFF
91	OVER RUN	02	256
92	DATA BIT	02	8
93	PROTOCOL	03	XON/XOFF

Table H-23. 572 Printer used as System Printer

572 Printer Option Settings			
Function Number	**Function Name**	**Menu Number**	**Menu Status**
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS	04	1200

- When the function to be changed is reached, press the **On Line** button. This activates the menu (available option settings) for the function. Use the **Line Feed** and **Form Feed** buttons to step through the options for the function.
- When a desired option is located, press the **Print Quality** button.
- Each time an option is set, the function and setting is printed.

1. Repeat Step 3 for each option to be set.
2. When the options are set, depress **Print Quality** button. The printer is now in the normal print mode.

Station Message Detail Recording (SMDR) Interface Option Settings

The interface between the G1 switch and station message detail recording equipment may be one of the following:

- Modular processor data module (MPDM) or modular trunk data module (MTDM)—The recommended option settings are shown in the following table.
- 212-type modem—The recommended option settings for the 212-type modem are shown in Table H-25.
- TN726 Data Line circuit pack and an Asynchronous Data Unit — modular processor data module (MPDM), modular trunk data modules (MTDM), or 212-type modems are not required.
- Connected directly to the **DATA COMMUNICATIONS EQUIPMENT** connector (Electronic Industries Association (EIA) Port) located on the back of the Control Carrier—modular processor data modules (MPDM), modular trunk data modules MTDM), or 212 modems are not required.
- 7400A—The recommended option settings for the 7400A Data Module are given in this chapter under the heading: "7400A Option Settings" on page H-19.

Refer to "Interface Cabling to Station Message Detail Recording (SMDR) Output Device" on page 9-63 for connection information.

The 475 or 572 printers can be used as an output receiving device for station message detail recording (SMDR). The recommended option settings for these printers are shown in the following tables. Also, a TELESEER, station message detail recording (SMDR), 94A Local Storage Unit (LSU), or Customer Premises Equipment (CPE) can be used as the output receiving device. Administration procedures for station message detail recording (SMDR) (MPDM) equipment are provided in *DEFINITY Communications System Generic 3 Implementation*, 555-230-653.

Table H-24. Option Switch Settings on Modular Processor Data Module (MPDM) or Modular Trunk Data Module (MTDM) for Station Message Detail Recording (SMDR)

Switch	Setting
SELF TEST	OFF
LOC LOOP/REM LOOP	OFF
1200 BAUD	ON
AANS (modular processor data module Only)	ON
SIGLS	ON
PRTY	ON
I/OD	ON
All Others	OFF

Table H-25. Option Switch Settings on 212-Type Modem for Station Message Detail Recording (SMDR)

Switch	Setting
AL	OFF
ST	OFF
RDL	OFF
DL	OFF
HS	ON

Audio Information Exchange (AUDIX) Interface Option Settings for G3i Systems

AUDIX is sometimes connected to the switch through the processor interface circuit pack. The first circuit on the processor interface can be connected directly to the AUDIX through the **PROCESSOR INTERFACE** connector on the rear of the control carrier. Any of the remaining three circuits on the processor interface to be used to support AUDIX must be connected through a modular processor data module (MPDM) serving as the interface link for AUDIX. The option settings recommended for the modular processor data module (MPDM) in this application are shown in Table H-26.

Table H-26. Option Switch Settings on Modular Processor Data Module for AUDIX

Switch	Setting
9600 BAUD	ON
SYNC	ON
INT	ON
AANS	ON
All Others	OFF

TN760 Tie Trunk Circuit Pack Option Settings

The TN760 circuit pack interfaces between four 6-wire tie trunks and the time division multiplex (TDM) bus. Two tip and ring pairs form a 4-wire analog transmission line. An E and M pair is used for signaling. The E and M pair are direct current signaling leads used for call setup. The E lead receives signals from the tie trunk and the M lead transmits signals to the tie trunk.

To choose the preferred signaling format (Table H-30 and Table H-31), set switches on the TN760 circuit pack and administer the port per Figure H-2 and Table H-29.

CAUTION:
To prevent damage from static electricity, always wear an EMC wrist strap (comcode 900 698 226) when handling circuit packs or other switch components.

Table H-27. Signaling Formats for TN760

Mode	Type
E & M	Type I Standard (unprotected)
E & M	Type I Compatible (unprotected)
Protected	Type I Compatible, Type I Standard
Simplex	Type V
E&M	Type V
E&M	Type V Revised

Table H-28. Signaling Type Summary

Signaling Type	Transmit (M Lead)		Receive (E Lead)	
	On-Hook	Off-Hook	On-Hook	Off-Hook
Type I Standard	grd	bat	open*/bat	grd
Type I Compatible	open*/bat	grd	grd	open*/bat
Type V	open/bat*	grd	open	grnd
Type V Reversed	grd	open	grd	open

* An open circuit is preferred over voltage.

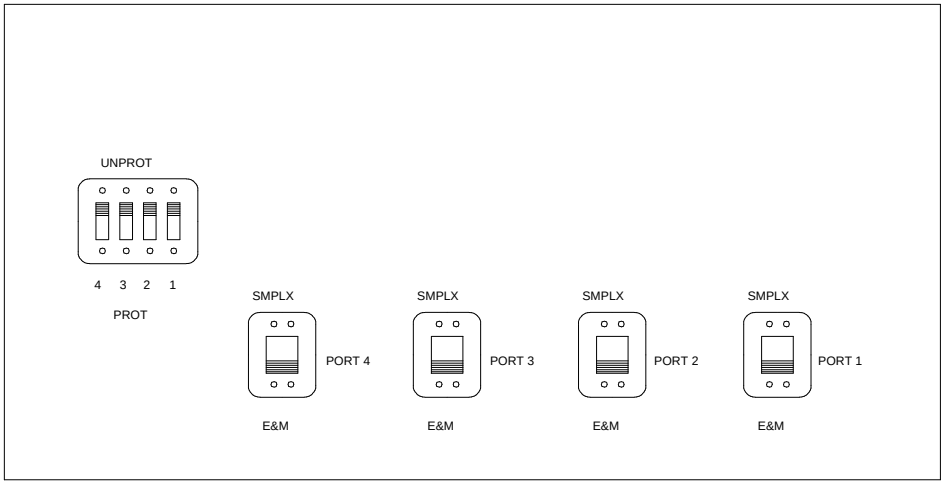


Figure H-2. TN760D Tie Trunk Circuit Pack (Component Side)

Table H-29. TN760D Option Switch Settings and Administration

G3 Installation Situation		Preferred Signaling Format		Set E&M/SMPLX Option Switch	Set Prot/ Unprot Option Switch	Administered Port
Circumstance	To	G3	Far-End			
Co-Located	Sys75/G1	Simplex	Simplex	SMPLX	Either	Type 5
		Type 5	Type 5			
Inter-Building	Sys75/G1	Simplex	Simplex	SMPLX	Either	Type 5
		Type 5	Type 5			
Co-Located	Sys85/G2	Simplex	Simplex	SMPLX	Either	Type 5
		Type 5	Type 5			
Inter-Building	Sys85/G2	Simplex	Simplex	SMPLX	Either	Type 5
		Type 5	Type 5			
Co-Located	DIMENSION	E&M Type 1	E&M Type 1	E&M	Unprotected	Type 1
	PBX	Compatible	Standard			Compatible
Inter-Building	DIMENSION	Protected Type 1	Protected Type 1	E&M	Protected	Type 1
	PBX	Compatible	Standard			Compatible
Co-Located	Other	E&M Type 1	E&M Type 1	E&M	Unprotected	Type 1
		Compatible	Standard			Compatible
Inter-Building	Other	Protected Type 1	Protected Type 1	E&M	Protected	Type 1
		Compatible	Standard Plus			Compatible
			Protection			
			Unit			
Co-Located	Net Integrated	E&M Type 1	Any PBX	E&M	Unprotected	Type 1
		Standard				

TN464C, D, E, F Option Settings

The TN464 circuit pack interfaces between a 24 or 32 channel Central Office (CO)/Integrated Services Digital Network (ISDN) or tie trunk and the Time Division Multiplex (TDM) bus.

The TN464C and TN464D act as Digital Service Level 1 (DS1)/E1 interfaces and Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) interfaces and have the following attributes:

- 1,544-megabits per second (Mbps) Digital Service Level 1 (DS1) (24 channel integrated services digital network (ISDN)) and 2.048 megabits per second Mbps) E1 (32-channel Integrated Services Digital Network (ISDN)) transmission rates
- Administrable A-law companding and Mu-law companding
- Cyclical redundancy checking (CRC) 4 check
- Stratum 3 clock compatibility
- D-channel connectivity for Integrated Services Digital Network (ISDN) primary rate interface (PRI)

The TN464D is a superset of the TN464C and has the following additional attributes: supports digital release link tie trunks and MFC, R2 Direct Inward Dialed (DID) signaling. In addition to supporting tie trunk, Central Office (CO) trunk, and Direct Inward Dialed (DID) trunk protocols, the TN464D supports bit-oriented signaling protocols and bit-oriented Direct Inward Dialed (DID) signaling protocols.

The TN464C and TN464D have the following signal leads: LBACK2, LBACK1, LO, LO (out), LI, LI (in to Private Branch Exchange (PBX)).

TN464C/D Option Settings

To choose the bit rate and the line impedance match, set plugs (TN464 C & D) on the circuit pack. Insert the jumper blocks into the pins to join the center row of pins and the row designating the desired options.

Set the impedance and bit rate as follows:

Table H-30. Option Switch and/or Plug Settings on TN464C/D

120 Ohms	Twisted Pair
75 Ohms	Coaxial requiring 888A adapter
32 Channel	2.048 megabits per second
24 Channel	1.544 megabits per second

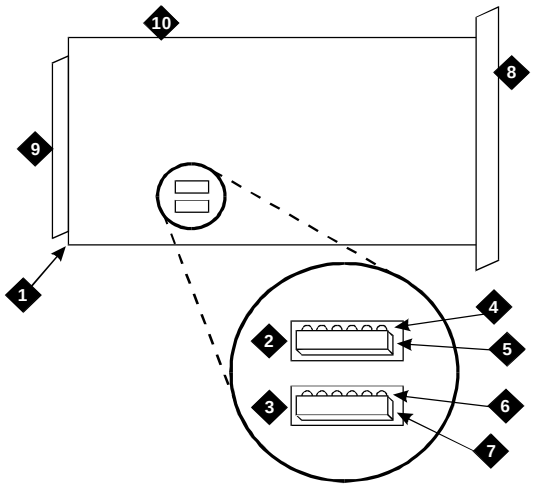


Figure Notes:

1. Backplane Connectors
2. 24/32 Channel Selector
3. 75/120 Ohm Selector
4. 24 Channel
5. 32 Channel (shown selected)
6. 120 Ohm
7. 75 Ohm (shown selected)
8. Faceplate
9. Connector
10. TN464C/D

Figure H-3. Selection of 75 Ohm and 32 Channel Settings on TN464

TN464E/F Option Settings

The TN464 circuit pack interfaces between a 24 or 32 channel Central Office/Integrated Services Digital Network (CO/ISDN) or tie trunk and the Time Division Multiplex (TDM) bus.

Set switches E and F on the circuit pack to select bit rate and impedance match.

Set the impedance and bit rate as follows:

Table H-31. Option Switch Settings on TN464E/F

120 Ohms	Twisted pair
75 Ohms	Coaxial requiring 888A adapter
32 Channel	2.048 megabits per second
24 Channel	1.544 megabits per second

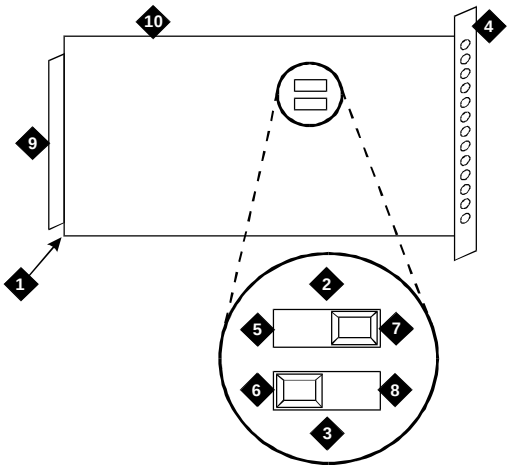


Figure Notes:

1. Backplane Connectors
2. 24/32 Channel Selector
3. 75/120 Ohm Selector
4. Faceplate
5. 32 Channel
6. 120 Ohm (shown selected)
7. 24 Channel (shown selected)
8. 75 Ohm
9. Connector
10. TN464E/F

Figure H-4. TN464E/F Option Settings

References

I

The following is a list of DEFINITY Generic 3 documents including a brief description of each document.

To order copies, refer to the address on the inside front cover. For additional DEFINITY documents, refer to the *GBCS Publications Catalog,* 555-000-010 available from the AT&T Customer Information Center.

Basic

The following are basic documents for anyone using DEFINITY.

An Introduction to DEFINITY Communications System Generic 3, Issue 1 **555-230-023**

Provides a detailed overview of the system including descriptions of many of the major features, applications, hardware, system capabilities, and the AT&T support provided with the system. This document reflects Generic 3 Version 2 software, but still contains relevant information.

DEFINITY Communications System Generic 3 Planning and Configuration, Issue 2 **555-230-601**

Provides step-by-step procedures for the account team in determining the customer's equipment and hardware requirements to configure a system according to the customer specifications. Includes detailed requirements and

block diagrams. This document reflects Generic 3 Version 2 software, but still contains relevant information.

DEFINITY Communications System Generic 3 Feature Description, Issue 2 **555-230-204**

Provides comprehensive technical descriptions of system features and parameters. Includes the applications and benefits, feature interactions, administration requirements, hardware and software requirements, and a brief discussion of data communications and private networking configurations.

DEFINITY Communications System Generic 3 Version 4 Implementation, Issue 1 **555-230-655**

Provides step-by-step procedures for preparing the hardcopy forms that correspond to the screens and are required to implement the features, functions, and services of the system. Includes procedures for completing a communications survey. Includes a complete set of blank forms (555-230-653B).

DEFINITY Communications System Generic 3 Version 4 Implementation Blank Forms, Issue 1 **555-230-653B**

Provides additional blank hardcopy forms that correspond to the screens and are required to implement the features, functions, and services of the system.

Copies of these forms are automatically included with the *DEFINITY Communications System Generic 3 Version 4 Implementation, Issue 1*, 555-230-653. Use this order number to purchase additional forms.

DEFINITY Communications System Generic 3 System Description and Specifications, Issue 3 **555-230-206**

Provides a technical description of the systems and is intended for service personnel, sales personnel, and customers needing a comprehensive overview of the system. Includes descriptions of hardware, software features, technical specifications, environment requirements, maintenance requirements, and illustration of components.

DEFINITY Communications System Generic 3 Version 4 Traffic Reports, Issue 2 **555-230-511**

Provides detailed descriptions of all the measurement, status, and security reports available in the system and is intended for administrators who validate traffic reports and evaluate system performance. This document was titled *System Reports* for earlier systems. Includes corrective actions for potential problems.

DEFINITY Communications System Generic 1 and Generic 3 Installation and Test, Issue 5 **555-230-104**

Provides descriptions of the procedures for installing and testing the system's common equipment and adjuncts. Includes set up procedures for the system management terminal, power and grounding requirements, and testing steps. Includes compete details on system wiring. Provides both domestic and international information.

DEFINITY Communications System Generic 3s and Generic 3i Installation, Issue 1 **555-230-894 UK English**
555-230-895 German
555-230-896 French
555-230-897 Spanish
555-230-900 Chinese

Provides procedures and information for hardware installation and initial testing of the DEFINITY Communications System Generic 3, models Generic 3i and Generic 3 single-carrier cabinet switches only. The United Kingdom version will be shipped with all single-carrier cabinet systems domestically.

DEFINITY Communications System Generic 3s and Generic 3i Installation (for Global Market), Issue 1 **555-230-104**

Provides descriptions of the procedures for installing and testing the system's common equipment and adjuncts. Includes set up procedures for the system management terminal, power and grounding requirements, and testing steps. Includes compete details on system wiring. Provides both domestic and international information for single carrier cabinets only. This document reflects Generic 3 Version 4.

DEFINITY Communications System Generic 3 Version 1.1 - Version 4 Upgrades and Additions, Issue 2 **555-230-107**

Provides procedures for an installation technician to convert an existing DEFINITY Generic 1, Generic 2, Generic 3 Version 1, Generic 3 Version 2, Generic 3 Version 4, or System 75 R1V3 to Generic 3 Version 4. Included are upgrade considerations, lists of required hardware, and step-by-step upgrade procedures. Also included are procedures to add control carriers, switch node carriers, port carriers, circuit packs, auxiliary cabinets, and other equipment.

DEFINITY Communications System Generic 3r Maintenance, Issue 4 **555-230-105**

DEFINITY Communications System Generic 3i/s/vs Maintenance, Issue 7 **555-204-105**

Provide detailed descriptions of the procedures for monitoring, testing, and maintaining the systems. Included are maintenance commands, step-by-step trouble-clearing procedures, the procedures for using all tests, and explanations of the system's error codes.

AT&T GBCS Products Security Handbook, Issue 4 **555-025-600**

Provides information about the risks of telecommunications fraud and measures for addressing those risks and preventing unauthorized use of GBCS products. This document is intended for telecommunications managers, console operators, and security organizations within companies.

DEFINITY Communications System and System 75 and System 85 Terminals and Adjuncts Reference, Issue 7 **555-015-201**

Provides descriptions of the peripheral equipment that can be used with System 75, System 85, and DEFINITY Communications System. This document is intended for customers and AT&T account teams for selecting the correct peripherals to accompany a system.

DEFINITY Communications System Generic 1 and Generic 3 Voice Terminal Operations, Issue 1 **555-230-701**

Provides detailed operating instructions for the system features on each type of voice terminal. Included are definitions of the voice features and user requirements.

DEFINITY Communications System Generic 1 and Generic 3 System Management, Issue 1 **555-230-500**

Provides operating procedures for the Generic 1 Management Terminal and the G3 Management Terminal for Generic 3 Version 1 systems. This document is intended for the System Administrator. Also included is information on administrative tasks and system backup procedures.

DEFINITY Communications System Generic 1, Generic 3, and System 75 Voice Terminal Guide Builder, Issue 1 **555-230-755**

Provides capability to produce laser-printed documentation for specific voice terminals. The software is supported by a comprehensive user's guide and on-line help. This product requires a 386 PC, minimum of 6MB disk space, minimum of 4MB RAM, a printer supported by Microsoft GDI printer drive, and Microsoft Windows 3.1 or higher. A mouse is recommended.

Call Center

The following list of documents are Call Center specific. Refer also to the Basic DEFINITY documents.

DEFINITY Communications System Generic 3 Call Vectoring/EAS Guide, Issue 4 **585-230-520**

Provides information on how to write, use, and troubleshoot vectors. Vectors are command sequences that process telephone calls in an Automatic Call Distribution (ACD) environment. It is provided in two parts: tutorial and reference.

The tutorial provides step-by-step procedures for writing and implementing basic call vector scripts.

The reference includes detailed descriptions of the call vectoring features, vector management, vector administration, adjunct routing, troubleshooting, and interactions with management information systems (including the Call Management System).

DEFINITY Communications System Generic 3 Basic Call Management System (BCMS) Operations, Issue 4 **555-230-704**

Provides detailed instructions on how to generate reports and manage the system and is intended for telecommunications managers wishing to use BCMS reports and system managers responsible for maintaining the system.

If Issue 4 is unavailable, use Issue 3.

Networks

The following list of documents are network specific. Refer also to the Basic DEFINITY documents.

DEFINITY Communications System Generic 3 Wideband Technical Reference, Issue 1 **555-230-230**

Provides detailed information regarding the Wideband Switching feature for the system and is intended for users and technical support personnel involved with the installation, administration, and operation of this feature. This feature provides high speed end-to-end connectivity between customer endpoints where dedicated facilities are not economical or appropriate. The primary function is to support high speed video-conferencing and data applications.

DEFINITY Communications System Generic 2.2 and Generic 3 Version 2 DS1/CEPT1/ISDN PRI Reference Manual, Issue 1 **555-025-107**

Provides a technical description of digital trunks in the DEFINITY Communication Systems. This includes trunks conforming to the DS1 (Digital Service Level 1) standard (1.544 Mbps) and the CEPT1 standard and all other methods of signaling, including bit oriented signaling as well as Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) signaling. This document includes background information on these topics, information on how digital trunk capabilities have been designed into the DEFINITY systems and information for field personnel and customers on how to provision and administer digital trunk capabilities and features. Provides both domestic and international information.

Application Specific

The following list of documents are application specific. Refer also to the Basic DEFINITY documents.

DEFINITY Communications System Generic 2 to Generic 3 Version 4 Transition Reference, Issue 1 **555-230-636**

Provides detailed descriptions of the difference between features and administrative forms for systems Generic 2 to Generic 3 Version 4 and is intended for AT&T personnel and customers involved in planning upgrades and migrations from an older system. Includes descriptions of new administrative commands.

DEFINITY Communications System Generic 3 CallVisor ASAI Planning Guide, Issue 4 **555-230-222**

Provides procedures and directions for the account team and customer personnel for planning and implementing the CallVisor Adjunct/Switch Application Interface (ASAI) PBX-Host environment. The CallVisor ASAI is a communications interface allowing adjunct processors to access switch features and to control switch calls. It is implemented using an Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI). Included are hardware and software requirements.

DEFINITY Communications System Generic 3 CallVisor ASAI Protocol Reference, Issue 4 **555-230-221**

Provides detailed layer 3 protocol information regarding the CallVisor Adjunct/Switch Application Interface (ASAI) for the systems and is intended for the library or driver programmer of an adjunct processor to create the library of commands used by the applications programmers. Describes the Integrated Services Digital Network (ISDN) message, Facility Information Elements, and information elements.

DEFINITY Communications System Generic 3 CallVisor ASAI Technical Reference, Issue 4 **555-230-220**

Provides detailed information regarding the CallVisor Adjunct/Switch Application Interface (ASAI) for the systems and is intended for the application designer responsible for building and/or programming custom applications and features.

DEFINITY Communications System Generic 3 CallVisor LAN Gateway Installation, Administration, and Maintenance, Issue 1 **555-230-223**

Provides procedures for installation, administration, and maintenance of the CallVisor LAN Gateway application and is intended for system administrators, telecommunications managers, Management Information System (MIS) managers, LAN managers, and AT&T personnel. The LAN Gateway application provides ASAI functionality using 10Base-T Ethernet rather than BRI as a transport media.

DEFINITY Communications System Generic 3 Automatic Call Distribution (ACD) Agent Instructions, Issue 4 **555-230-722**

Provides information for use by agents after they have completed Automatic Call Distribution (ACD) training. Includes descriptions of features and the procedures for using them.

DEFINITY Communications System Generic 3 Automatic Call Distribution (ACD) Supervisor Instructions, Issue 4 **555-230-724**

Provides information for use by supervisors after they have completed Automatic Call Distribution (ACD) training. Includes descriptions of features and the procedures for using them.

DEFINITY Communications System Generic 1 and Generic 3 Console Operation, Issue 2 **555-230-700**

Provides operating instructions for the attendant console. Included are descriptions of the console control keys and functions, call-handling procedures, basic system troubleshooting information, and routine maintenance procedures.

DEFINITY Communications System Generic 1 and Generic 3 Console Quick Reference, Issue 1

555-230-890 UK English
555-230-891 German
555-230-892 French
555-230-893 Spanish
555-230-920 Chinese

Provides operating instructions for the attendant console. Included are descriptions of the console control keys and functions, call handling, basic system troubleshooting information, and routine maintenance procedures.

An Introduction to DEFINITY Communications System Generic 3 Hospitality Services, Issue 1

555-230-021

Provides an overview of the features available for use by the lodging and health industries to improve their property management and to provide assistance to their employees and clients. Included are brief definitions of many of the system features, descriptions of the hardware, planning considerations, and list of the system capabilities.

DEFINITY Communications System Generic 1 and Generic 3 User's Guide Hospitality Operations, Issue 2

555-230-723

Provides step-by-step procedures for using the features available for use by the lodging and health industries to improve their property management and to provide assistance to their employees and clients. Includes detailed descriptions of reports.

Abbreviations

A

AC
Alternating Current

ADU
Asynchronous Data Unit

AMI
Alternate Mark Inversion

ANSI
American National Standards Institute (U.S.A.)

AWG
American Wire Gauge

B

BCMS
Basic Call Management System

BRI
Basic Rate Interface

C

CAS
Centralized Attendant Service or Call Accounting System

CBC
Coupled Bonding Conductor

CCITT
Consultative Committee for International Telephone and Telegraph

CC
Country Code

CEPT1
European Conference of Postal and Telecommunications Rate 1

CI
Clock Input

cm
Centimeter

CMS
Call Management System

CO
Central Office

CR
Carriage Return

CTS
Clear To Send

D

DC
Direct Current

DCE
Data Communications Equipment

DCS
Distributed Communications System

DDC
Direct Department Calling

DOD
Direct Inward Dialing

DIW
D-inside wire

DS1
Data Services 1

DSR
Data Set Ready

DTE
Data Terminal Equipment

E

EI
Expansion Interface

EIA
Electronics Industry Association

EPN
Expansion Port Network

F

FCC
Federal Communications Commission (U.S.A.)

G

G3MT
Generic 3 Management Terminal

H

HZ
Hertz

I

I/O
Input/Output

in
inch

INADS
Initialization and Administration System

ISDN
Integrated Services Digital Network

L

LCD
Liquid Crystal Display

LED
Light Emitting Diode

LSU
Local Storage Unit

M

MPDM
Modular Processor Data Module

MT
Management Terminal

MTDM
Modular Trunk Data Module

N

NEC
National Electrical Code (U.S.A.)

P

PBX
Private Branch Exchange

PDM
Processor Data Module

PDU
Power Distribution Unit

PPN
Processor Port Network

PMS
Property Management System

PRI
Primary Rate Interface

PX
PBX transmit

R

RTS
Request To Send

S

SCC
Single Carrier Cabinet

SMDR
Station Message Detail Recording

SPE
Switch Processor Element

SPID
Service Profile Identifier

SWG
Standard Wire Gauge (United Kingdom)

T

TDM
Time Division Multiplexer

TM
Test Mode

TX
Terminal transmit

U

UCD
Uniform Call Distribution

UPS
Uninterruptible Power Supply

W

WATS
Wide Area Telecommunications System (U.S.A.)

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